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MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—10TH YEAR. SYDNEY: SATURDAY, JUNE 9, 1923. No. 23.

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Table of Contents

PAGE.

ORIGINAL ARTICLES—
"Infection in Cardiac Disease," by WILLIAM N. HORSFALL, M.B., B.S. .. 627
"The Problem of Malignant Disease, with Special Reference to Radium Therapy," by H. M. MORAN, M.B., F.R.C.S. .. 632
"The Clinical Significance of the Complement Fixation Test in Gonorrhœa," by NORMAN M. GIBSON, O.B.E., M.B. and C. J. WILEY, M.B. .. 635

REPORTS OF CASES—
"Mastoidal Disease with Lateral Sinus Infection" by HUBERT M. JAY, M.B., B.S. .. 638

REVIEWS—
Medical Pathology .. 639
Materia Medica and Therapeutics .. 640

LEADING ARTICLES—
A Lost Opportunity .. 641
Clinical Records .. 642

CURRENT COMMENT—
Gastric and Duodenal Ulcer .. 644
The Lipoids of Maternal and Fœtal Blood at the Conclusion of Labour .. 645

ABSTRACTS FROM CURRENT MEDICAL LITERATURE—
Surgery .. 646

PAGE.

BRITISH MEDICAL ASSOCIATION NEWS—
Scientific .. 648
Medico-Political .. 649
Nominations and Elections .. 649
Missing Journals .. 650
Notices .. 650

MEDICAL SOCIETIES—
The Medical Sciences Club of South Australia .. 650

POST-GRADUATE WORK—
November Course in Melbourne .. 651

NAVAL AND MILITARY—
Appointments .. 651

PUBLIC HEALTH—
National Council for Combating Venereal Diseases 651

CORRESPONDENCE—
Mite Infestations of Man in Australia .. 653
Operations on the Foot .. 653
The Distribution of Rat Fleas in Australia .. 653

PROCEEDINGS OF THE AUSTRALIAN MEDICAL BOARDS—
Queensland .. 654

MEDICAL APPOINTMENTS .. 654

MEDICAL APPOINTMENTS VACANT, ETC. .. 654

MEDICAL APPOINTMENTS: IMPORTANT NOTICE 654

DIARY FOR THE MONTH .. 654

EDITORIAL NOTICES .. 654

INFECTION IN CARDIAC DISEASE.[1]

BY WILLIAM N. HORSFALL, M.B., B.S. (MELBOURNE),
Surgeon-Commander, Royal Navy (Retired), Sydney.

IN the consideration of cardiac disease attention has of late years been drawn to the importance of the condition of the cardiac muscle and not so much emphasis has been laid on the condition of the valves. A valvular lesion, *per se*, is no longer regarded as of so much importance in heart disease, the present-day opinion being that if the valves are diseased, the cardiac muscle is diseased to a greater or lesser extent. It is from this point of view that it is necessary to recognize the condition of the valves.

In a former paper I dealt with the valvular aspect of heart disease. In this paper I want to consider the causes which interfere with the efficiency of the cardiac muscle, and also to describe certain lesions to be found in heart muscle and to bring forward clinical evidence of their presence.

The causes which interfere with the efficiency of the cardiac muscle are all due to infections of one type or another. At the outset we can distinguish two groups: firstly, temporary infections in the otherwise healthy heart, which, though interfering with the cardiac efficiency, leave no permanent trace in the cardiac musculature, and, secondly, infections in a heart already diseased.

By the use of the word infection, I mean either a toxæmia resulting from a local infective process in some other part of the body or an infective process in the heart itself.

Toxæmia Resulting from Temporary Infections.

Under the heading of temporary infections are included slight febrile attacks, such as catarrhs. The subject is brought forward because the effects of these minor affections are so often attributed to physical strain. I do not believe that physical strain can do any permanent damage to the healthy heart.

If I may be personal, I would like to refer to an incident which occurred when I was a medical student and when I played lacrosse. On a certain day I happened to play so well that leaders of the game came to witness our next match, with the idea of promoting me to another team. At the second match I could not run at all well and failed dismally. I well remember making the observation that for two or three days previously I had been suffering from

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on April 27, 1923.

a simple coryza, not sufficient to cause a rise in temperature so far as I know, nor to lay me off my usual medical studies. Lacrosse is a game which taxes one's exercise tolerance to the utmost and calls on all the cardiac reserve that one can summon up. I take it that simple infection had the effect of limiting the cardiac reserve. In the course of ordinary work, such a limitation of the cardiac reserve from so simple an infection would be unnoticed. It would show itself as a feeling of being out of sorts. Tobacco I view in a similar way. Every athlete knows that tobacco "spoils the wind" and it is extraordinary that all patients with serious cardiac conditions reduce their tobacco consumption to very moderate limits. They do this because, having very little cardiac reserve at their disposal, they can waste none of it on tobacco, for it does encroach on their very limited reserve. On this account, if a patient who is supposedly suffering from cardiac disease, is a heavy smoker, I am ready to discount to some extent the seriousness of his cardiac symptoms.

Infection in these cases has purely a temporary effect in the reduction of the cardiac reserve and with simple catarrh I would group all infections which leave no permanent damage in their train. Physical strain in an athlete has been said to damage the cardiac musculature. Healthy boys have been wrongly advised not to indulge in athletics because of the possible damage to their hearts. Some years ago a discussion took place in the press as to the dangers of boat rowing in causing heart disease. Statistics were produced and it was found that among one hundred and fifty-two oarsmen in the Harvard boat crews from the years 1852 to 1892, no case of heart disease had developed. On the contrary, they lived longer on the average than other people. Instances of heart failure are met with during athletic training, failure which is temporary in its effects. A man may collapse on the football field. In all such instances some rise of temperature indicative of infection will be found or a history will be obtained that on the particular day of training on which the heart symptoms declared themselves, the individual was "out of sorts" or "off colour."

A temporary infection will account for this collapse and, further, providing the infection is of a temporary character and not one that specifically attacks the heart, the heart undergoes no permanent damage when the infection has passed off. Strain cannot be brought forward as the cause of heart disease and in those cases where it is considered to be the cause, some underlying infection will be found to be present.

Infection in the Diseased Heart.

If the effect of strain cannot then be brought forward as a cause of heart failure in a healthy heart, can it be the cause of failure in a heart already diseased? I think it cannot. We read in a modern text-book of heart disease (1923) of the strain of emphysema and bronchitis and arterio-sclerosis and effort in causing heart failure. The inference is that in bronchitis we have a condition of congestion which imposes a mechanical obstruction to the work of the right ventricle. In arterio-sclerosis the inference is that we have a condition of high blood pressure which gives more work for the left ventricle. Both these conditions are said to induce failure in heart disease because of the mechanical obstruction. There I must disagree. In arterio-sclerosis we find there is no correlation between the height of the blood pressure which is said to cause the failure, and the degree of failure. Some people manage tolerably well with systolic blood pressures of two hundred and twenty millimetres of mercury and more and that at a great age; others are in much greater trouble with a lower blood pressure. On the one hand, in a patient with heart disease with a high blood pressure we are ready to attribute the cause of heart failure to the high blood pressure—a mechanical cause; on the other hand, with a lower degree of blood pressure we are ready to recognize the diseased myocardium as the cause. We cannot have it both ways. Here again we must direct our attention to the cardiac muscle and, though effort and strain and high blood pressure do give more work for the heart, they have very little to do with the production of heart failure. The essential point is the cardiac musculature and how far it is involved in an infective process or a degenerative process, if I may be allowed to consider a degenerative process as primarily due to an infection. The effect of these infections may be temporary, as in those cases arising from catarrhs *et cetera*, or their effects may be permanent, as, for example, in rheumatic fever or syphilis. Patients with heart failure and congestion on admission to hospital often show some slight rise of temperature and the infection which has caused the rise of temperature, has been just sufficient to exhaust the remaining cardiac reserve. Bronchitis as a cause of acute heart failure must be looked at, not from its mechanical aspect, but from the standpoint of infection. I do not believe that bronchitis mechanically gives the right ventricle more work to do and thus brings on failure. The infection which has declared itself in bronchitis, has invaded the cardiac reserve at the same time and thus embarrassed the heart.

In acute pneumonia everyone agrees that the heart fails as a result of toxæmia and not as a result of strain consequent on the work the right heart has to do in pumping the blood through the congested lungs. Surely it is time we relegated to the background the mechanical factors in heart failure.

Of course, strain and effort must do something to the heart. The treatment of heart failure is absolute rest in bed. Are we to discount absolutely the effects of strain and effort on the heart? If so, why treat a patient with rest in bed?

Let us approach this question from a physiological point of view. What would be the effect of effort in a patient bordering on heart failure who showed some signs of congestion, such as distended veins in the neck? There would be a sudden call for the heart to increase its output. This would use up all the cardiac reserve and the heart might not be able to give this increased output. With the

effort the pressure in the big veins would be increased. The heart, to give an increased output, must receive an increased inflow. We know that at the outset of exercise in health the heart's output is immediately increased and that there is an increased inflow of venous blood into the right side of the heart. If the heart's output cannot be increased, owing to a diseased condition, then this increased inflow of venous blood would cause a rise of venous pressure on the right side of the heart.

The kidneys, already passively congested, are congested still further and the excretion of urine falls because the heart is unable to lift the load behind it.

Now the reduction of this venous pressure by bleeding may be just sufficient to allow the heart to turn the corner. We bleed our patient, say, three hundred to four hundred and fifty cubic centimetres (ten to fifteen ounces) and he feels immediately relieved. Why? Because we have suddenly reduced the diastolic pressure which was embarrassing the heart and we have suddenly reduced the venous pressure, which allows the kidneys to excrete more fluid. We can think of the heart muscle stretched to its physiological maximum with a pressure behind it stretching it to the limits of the pericardial sac. The heart is unable to carry on. The bleeding has undone what the effort caused.

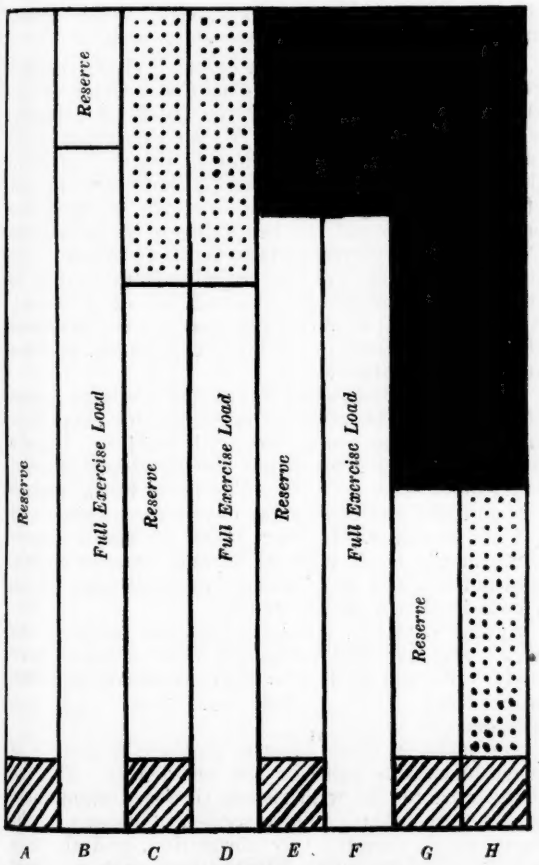

FIGURE I.

Hatched squares indicate the rest load of the heart. Dotted areas indicate the cardiac reserve temporarily reduced by an infectious process, such as a common cold. Black area indicates the cardiac reserve permanently lessened by a diseased myocardium.

Such a case would suggest that a sudden effort had bowled the heart over. But in a heart already diseased effort would certainly increase the degree of breathlessness or other distress and this would prevent the effort being continued. This is Nature's check. Apart from an infection, such a heart enforced by distress to check its effort would be enabled to overcome the increase of venous pressure brought on by the effort and thus to carry on its work.

The immediate cause of failure may be ascribed by the patient to an effort, say, to catch a train, but that same effort has probably been indulged in on many previous occasions without bad results. The effort may have found him out when he had a very slight infection, or a relatively more severe infection will cause failure without any effort being indulged in.

A common cold spells tragedy to a heart bordering on failure.

In Figure I. I represent diagrammatically the condition. *A* and *B* represent the healthy heart at rest and during severe exercise. *C* and *D* represent the healthy heart in a case where a temporary infection such as a cold in the head exists. *E* and *F* show the reduction of reserve at rest and exercise in a patient with permanent disease of the myocardium. In *G* the heart muscle is further invaded and in *H* a temporary infection superadded, as in *C* and *D*, shows the heart just able to carry on the circulation at rest.

Pathological Lesions Found in Heart Muscle.

I have used the expression cardiac reserve very frequently and it becomes of interest to inquire as to whether there is a pathological basis for the term "limitation of the cardiac reserve." In other words, are we left with a hypothetical cardiac reserve which cannot be accounted for by an alteration of structure in the cardiac muscle? There are many gaps in the story which have to be bridged, and our evidence so far is incomplete.

In the course of various infections degenerative changes in the heart muscle are found. In acute diseases which cause death, there is not much difficulty in identifying changes in the heart muscle as fatty degeneration, areas of fibrosis and others.

In the chronic diseases, such as rheumatic fever, which are not usually fatal, more difficulty is encountered. We have to surmise what may be happening.

Sturges[1] as long ago as 1894 referred to the condition of carditis rather than endocarditis in rheumatic fever.

Aschoff[2] and Coombs[3] have described the submiliary nodules, now known as Aschoff's bodies, in the connective tissue of the heart wall. In the nodules are giant cells with two or more nuclei. Sometimes are found giant cells in the centre of small streaks of cicatricial tissue and it is believed that these nodules are analogous to similar nodules

found about the fingers, elbows and knees in rheumatic patients, which disappear by absorption.

Aschoff[2] also describes areas of anæmic necroses due to embolic infections. He considers that, although the cardiac muscle in rheumatism is not directly involved, it is indirectly involved by the interference to the conducting system of the heart caused by the presence of these lesions.

Although the evidence of pathological change in the heart muscle itself is not clear, one would scarcely expect to find definite changes in a disease like rheumatism which takes years of progress to damage the heart.

It has been possible to examine the heart of some patients with acute rheumatism who have died in eight days or a few weeks from cardiac involvement.

Sutherland and Coombs[4] describe an acute case of rheumatic carditis which proved fatal in six days. "The myocardium was found to show an intense degree of fatty degeneration. In large tracts of the left ventricle not a single normal muscle cell could be found. The inflammatory reaction consisted of aggregations of endothelial cells arising apparently from proliferation of the cells lining the capillaries and lymphatics. Thrombotic inflammation of some large vessels was found. The sub-miliary nodule had not had time to develope, but that which precedes it—endovascular proliferation—was universally to be seen."

Now an instance like the above belongs to the very severe type of rheumatic infection which is happily rare. It is reasonable to suppose that in the usual type of rheumatic fever there is a less acute process of the same type going on—a proliferation of the cells lining the capillaries, a fibroblastic reaction of the connective tissue cells, the formation of Aschoff's bodies and their disappearance resulting in scar tissue.

Clinical Evidence of Pathological Lesions in the Heart.

We frequently find a patient with acute heart failure who gives a history of an ordinary attack of rheumatic fever many years previously. During a first attack of acute rheumatism in a young subject it is extremely difficult or impossible to determine whether the heart has been attacked. Presumably our patient had convalesced in the usual way and in the few years preceding the attack of failure may have been getting more and more short of breath. The question I would like to ask is: What has been happening in the heart through all these years, that after such a lapse of time since the attack of rheumatism a condition of acute failure should be brought about? We are to a great extent in the dark in answering this question and can only conjecture from what we know happens in the heart in the very virulent types of acute rheumatism which kill in a week or two, and from a few electro-cardiographic records which have been taken in the periods of more or less good health.

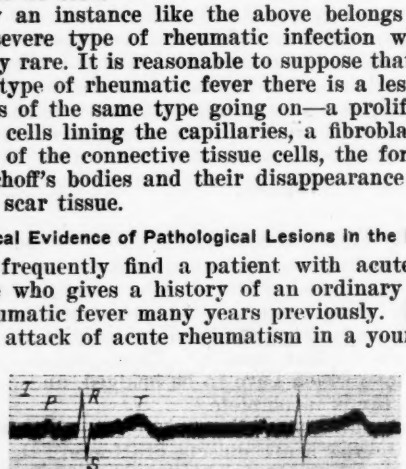

FIGURE II..
Electro-cardiograms from three leads in a normal subject. (After Lewis.)

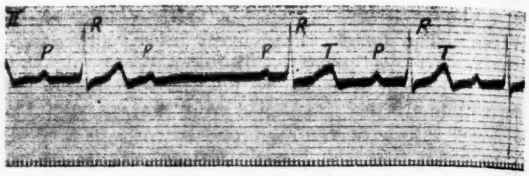

FIGURE III..
Partial Heart Block. (After Lewis.)

In Figure II. I show a normal electro-cardiographic curve. The *P* wave marks activity in the auricle. It is succeeded by the *Q—R—S* complex, which signifies the spread of the excitation wave in the ventricles and does not in health last more than 0.1 of a second. The end *T* indicates the end of ventricular systole. The interval between the beginning of *P* and the beginning of *R*, called the *P—R* interval, corresponds to the time taken in the conduction of the cardiac impulse from auricle to ventricle. It should not exceed 0.2 of a second. A *P—R* interval of over 0.2 of a second is considered abnormal and indicates delayed conduction between auricle and ventricle.

Lewis,[5] in discussing this subject, relates a case of a woman in hospital for operation for exophthalmic goitre. She was a rheumatic subject. On the seventh day after operation she developed partial heart block with no fever. The heart block became less and less and after eight days had vanished and did not reappear. In heart block we find a lengthening of the *P—R* interval beyond what is considered normal, and an occasional dropped beat. Such a case is shown in Figure III..

Again, a patient sought advice for pains in the neck. She had had rheumatic fever a year previously. She had no fever. She was discovered with heart block which lasted four weeks and then subsided.

The point in these cases is that the discovery of heart block was more or less accidental. The patients were not ill with rheumatic fever when these curves were taken. I have spoken of lesions in the heart which disappear by absorption, and there is evidence of functional disturbances, such as heart block occurring for short periods. It can be suspected that the lesions are temporary manifestations of an infection and that they produce the functional disturbance. The inference is that rheumatic fever,

so far as its cardiac involvement is concerned, deals a succession of blows on the heart which manifest themselves quite apart from the articular manifestation of rheumatic fever and are for the most part unnoticed. In other words, it is correct to look upon a rheumatic subject as one who is liable to a series of infections of a rheumatic nature in his heart and the attack of acute rheumatism with swelling of joints should be considered as an exacerbation of the disease. The analogy to gout suggests itself. In gout we find acute articular inflammation. Everyone recognizes that the disease is expressing itself in other organs in the intervals of the joint attacks. If this view be correct, the importance of enucleating tonsils and searching for other septic foci subsequent to a first attack of acute rheumatic fever is evident.

Heart block declares itself when there is an invasion of the bundle (the conducting system between auricle and ventricle), but it seems correct to assume that if the bundle is invaded, other parts of the myocardium, the so-called silent areas of Lewis, are invaded also with consequent damage to the general musculature of the heart.

Parkinson, Gosse and Gunson[6] have investigated fifty instances of acute articular rheumatism and found that acute heart block developed in fifteen patients. It often appeared in the absence of fever and in the absence of any increased pulse rate and disappeared during convalescence.

Figure IV., which is taken from their paper, shows a condition of partial heart block.

Figure V. shows a curve from a patient with aortic disease during a simple febrile attack.[7] The curve indicates defective conduction along the right division of the auriculo-ventricular bundle.

Figure VI., taken from the same patient on the following day, shows that the bundle defect has cleared up.[5] This case gives us an insight into some of the conditions referred to previously in this paper, conditions in which a catarrh has invaded the cardiac reserve in patients with heart disease (see Figure I., Column *H*).

Functional disturbance in the heart has been demonstrated in many different infective conditions, such as cystitis, and it is for this reason that many abnormal heart conditions are found for which we can ascribe no cause.

The subject is of great interest because it brings out the fact that disturbance of function, as evidenced by a dropped beat and heart block, runs hand in hand with alteration of structure. It seems right to focus our attention on this subject, so that

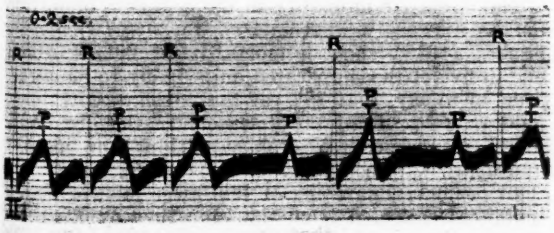

FIGURE IV..
Partial Heart Block. (After Parkinson, Gosse and Gunson.)

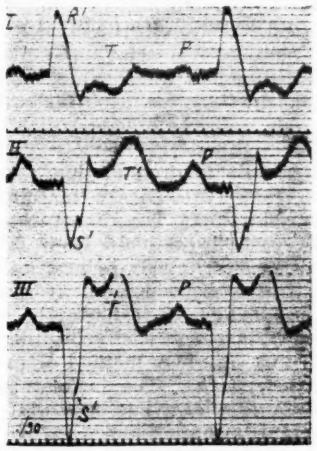

FIGURE V..
Curves taken from the three leads in a case of aortic disease during a febrile attack. They show defective conduction along the right division of the auriculo-ventricular bundle. (After Lewis.)

more observations may be made in the future on the slow and progressive development of lesions in the cardiac musculature which result finally in heart failure as seen in every-day medical practice.

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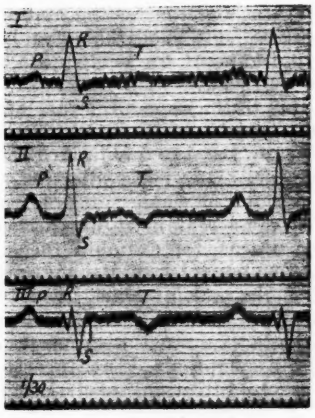

FIGURE VI..
Curves from the same patient (from whom curves of Figure V. were taken) taken a day later and during the subsidence of the fever. The ventricular portions of the curves have changed profoundly; there is now no evidence of bundle defect, but of preponderance of the left ventricle. (After Lewis.)

THE PROBLEM OF MALIGNANT DISEASE, WITH SPECIAL REFERENCE TO RADIUM THERAPY.[1]

By H. M. MORAN, M.B. (SYDNEY), F.R.C.S. (EDIN.),
Honorary Assistant Surgeon, Saint Vincent's Hospital, Sydney.

IT would be idle to pretend that the results obtained from the treatment of malignant disease are at all satisfactory. The literature of cancer is strewn with cast-off methods from "Cuprase" to Coué-ism and yet each year brings its new elixir. It is then little to be wondered at that men who have seen the fashions of yesterday become the discards of to-day, are not easily beguiled into optimism concerning any new method of preventing or eradicating the scourge. The one method which has survived, *faute de mieux*, has been that of surgery, the cure by mutilation.

Statistical Inquiry.

I propose to take stock somewhat rapidly of the gains from operation for certain forms of malignant disease. The figures are all taken from reliable sources and are beyond suspicion. I admit the fallacy of drawing too positive a conclusion from any statistics, for, personally, I believe them to be so plastic that as a rule they are of greatest value when they seem to disprove the thesis which a writer sets out to establish. Nevertheless, they mean something and they cannot lightly be disregarded. Without discrediting a great art they reveal certain limitations of which we are prone to lose sight. Indeed, the perspective of those of us who practise surgery, is liable to distortion; we have too close a view point. The general practitioner who sees our "good results" dying a cancer death, has a more normal vision.

The treatment by surgery is, of course, applicable to only a certain proportion of the patients presenting themselves. The ratio of operability varies widely; it is high in cancer of the lip and comparatively low in cancer of the rectum and of the *cervix uteri*. It will be contended that, could we but see our cancer patients at an earlier stage, our successes from surgery would be more numerous. There is in this State no counterpart of the *"Ligue Franco-Anglo-Américaine contre Cancer"* which seeks to educate the lay public to an early suspicion of cancer. But early diagnosis and early operation are not the whole solution and in many instances they must remain an unrealized ideal. In cancer of the uterus, for example, the signal symptom of post-menopausal hæmorrhage implies a certain degree of ulceration. Mackenrodt[1] found the disease already beyond the uterus in nine among eighteen patients examined within a month of the earliest definite symptoms. In cancer of the large bowel not rarely intestinal obstruction gives the first hint of a growth.

We as practitioners have to face the realities of the consulting room and it is vain to sigh for Utopian conditions in which the patient will present himself what time the first wayward cell pushes its malign course through the basement membrane. And it is wrong for a surgeon to seek justification for poor surgical results by complaining of the late stage at which he receives his patients. For some surgeons at least the "suitable stage" for operation is that at which they never see their patients, while their bad results are inevitably laid at the door of the antecedent attendant.

Cancer of the Lip.

In cancer of the lip we get our best results. The Mayo Clinic supplies the best figures and they show that, when the lip and glands are removed in patients whose glands are not palpable, 90% remain well for from five to eight years. If the glands are palpable, only 18% will be well after that time.[2] Even in pre-Listerian days some of the German clinics reported from 38% to 66% of cures.[2]

After invasion of the jaw, however, Bloodgood could find no record of ultimate cure.[1]

Cancer of the Tongue.

As regards cancer of the tongue, of thirty-four patients presenting themselves at the Bristol Royal Infirmary from 1915 to 1918, in only twenty-four was the condition operable.[6] Of one hundred and fifty-five patients, Küttner[3] found the operative mortality was 8.3% and over 17% of those who survived operation, were cured. In other words, 85% of the patients in whom the condition is operable, die of the disease. Rendle Short claims that in suitable cases one-third of the patients will be cured by operation.[2] Warren, Butlin and Meller, however, give results similar to those of Küttner.[1] Bastianelli[4] has not seen a single cure of cancer of the tongue when it was situated at the base.

Cancer of the Tonsil.

In cancer of the tonsil, of which Küttner had forty-nine examples, the operative mortality was 18.4% and 7.7% of those who survived, were well three years later. In other words, 93% of those operated on were dead within three years.[3]

Cancer of the Floor of the Mouth.

Küttner had thirty-five patients with cancer of the floor of the mouth, with an operative mortality of over 10%. Of those who survived, over 11% were well after three years. That is to say, that 90% of the patients in whom the condition had been operable, died within three years.[3]

Cancer of the Jaws.

The operative mortality in the complete operation on the upper jaw is from 20% to 30%. Ochsner's figures (1918) show a mortality of 20%. About one in five of those operated on is likely to be cured. That is to say, that 80% of the patients with operable growths die of the disease. In the great majority recurrence takes place within four months and death within a year.[2]

In periosteal sarcoma of the lower jaw, of eleven instances collected from the literature by Butlin[2] recurrence occurred in nine, one patient died of pneumonia within a year and the other was well

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on April 27, 1923.

nearly three years later. These numbers are too small to justify any conclusion except as to the high mortality rate of the disease. Myeloid sarcoma of the lower jaw is less fatal.

Cancer of the Stomach.

The Mayo Clinic supplies the best results. In slightly over one-third of those suffering from the disease was the condition operable. The operability ratio elsewhere varies from one in three to one in five. The Mayo operative mortality was 13.7% in seven hundred and thirty-six patients, but only 7% in the latest series. Roughly speaking, we may say that at the Mayo Clinic a patient with cancer of the stomach has from one chance in three to one in five of being operated on; if he is operated on, he has a 90% chance of surviving the operation, a 36% chance of a three years' cure and a 25% chance of a five years' cure. In other words, of the aggregate of sufferers from this disease who reach the Mayo Clinic, 88% die within three years of the disease and 91% within five years.[2]

Peck's figures,[1] however, are very depressing. He collected records from the New York hospitals of five hundred and twenty-seven patients with gastric cancer and could trace only thirty-three, of whom twenty-three were temporarily cured and only eight were known to be alive after three or four years.

Cancer of the Rectum.

The ratio of operability varies from one in four to one in three. It is often much lower; for example, of forty-seven new patients attending Saint Mark's Hospital in 1919, forty-two were suffering from inoperable conditions. The abdomino-perineal operation in the hands of its originator had at first an operative mortality of 42% and though that rate has dropped in his last series to 18%, for the average surgeon it remains much higher.[2]

Sir Gordon Watson[2] gives his operative mortality at 34%; one-third of the survivors escape recurrence. Thus one may say that of one hundred sufferers, twenty-five will be submitted to operation and eight of these will die of the operation. Of the remainder, five to six may escape recurrence.

Cancer of the Bladder.

According to Thomson Walker[2] the ratio of operability is not high. Rafin collected records of ninety-six patients, among whom the operative mortality was nearly 22%. Of the seventy-five who survived, the end result was known in only fifty-two. Twenty-one of these were without recurrence, but twelve were at a stage of less than two years after the operation. Very few are ever cured.

Cancer of the Testicle.

The operative mortality is here low, except in the modern operation, which has a mortality of 11%. The end results are disheartening. They are collected from the literature, not from hospital records, and are therefore unduly favourable. Hinman, reporting a series of twenty-four instances from the Johns Hopkins Hospital, found that twenty out of twenty-four of the patients were dead.[2]

Periosteal Sarcoma of the Long Bones.

It is hard to find authenticated records of cure after operation for periosteal sarcoma of the long bones. Only one instance of cure after operation for periosteal sarcoma of the humerus could be found by Butlin. Among sixty-eight patients suffering from periosteal sarcoma of the femur the operative mortality was 12% and only two were alive after three years. Of these two, one had suffered from his growth for seven years before it was removed and there had been some doubt as to the nature of the growth of the other.[2] Amputation of the limb for periosteal sarcoma in the long bones never cures. Myeloid sarcoma is now regarded as practically an innocent tumour.

Cancer of the Breast.

In cancer of the breast Sampson Handley[5] gives his percentage of successes at a period of three years after operation as 47% or 48% of those operated on. In other words, 52% of his patients do not survive three years after the operation. Now three years is too short a term to use as a test of cure, for late recurrence in breast cancer is a common experience of all surgeons. Ewing[1] is of the opinion that when a woman presents herself with cancer of the breast and with axillary glands enlarged, her chance of being cured is one in twenty-five. The best results have been obtained by Rodman, of Philadelphia, who had 72% of fifty patients alive after three years. Some of these patients had been operated on at a stage at which diagnosis was possible only after use of the microscope.

In acute cancer of the breast no treatment is of any avail.

Cancer of the Uterus.

In the comparatively rare condition of cancer of the body of the uterus, the surgical results are relatively good. Mayer[2] operated on twenty-six patients and of these three died from operation, seven showed recurrence and thirteen, or 52%, were alive and well five years later. Winter's figures are much the same and so are those of Wertheim.

But the results are far otherwise in cancer of the *cervix uteri*. Jacobson,[1] in an elaborate analysis, showed that of the women who enjoyed the services of the best American operators, 35% were not suitable for operation, the operative mortality was over 15%, while after five years only 8.39% were well and that only 1% was ultimately cured.

Wertheim's figures, published in 1915, showed that in 46% of his patients the condition was operable, the operative mortality was 19% and 19% of those operated on were well after five years.

Berkeley and Bonney claim to have 26% of patients well after three years. Their mortality rate is 22%.

The percentage of patients in whom operation may be undertaken varies from 40% to 60%. Janeway[6] tabulated the results of six thousand cases collected from surgeons in America and Europe and the records showed that for every one hundred patients presenting themselves for surgical treatment,

sixty must be turned away. Of the remaining forty-seven die as a result of the operation, twenty-five will have recurrence and eight will be cured.

The Possibility of Obtaining Improved Results.

These are the figures drawn from sources that cannot be discredited. The average hospital results are much worse. We pluck only an occasional brand from the fire. Surely, then, with such figures before us, it behoves us to calculate very carefully before operation the chance of ultimate cure in each individual patient, the chance of prolonging life and staving off recurrence and the chance of giving relief from symptoms. Against operation we must debit the mortality rate of the particular operation, the suffering entailed, the deformity that may result and the possibility of hastening the spread of cancer cells by handling. On the other hand, merely to label these patients as "incurable" and, without further resort, to condemn them to the drug habit or the ignorant optimism of the Chinese herbalist, is unworthy of a profession which still claims to respect Hippocratic ideals. We have to face a difficult situation, but the problem will not be solved by making our only cancer hospital the annex to a home for incurables.

In the present state of our knowledge, it is evident that the best that can be done for a patient with malignant disease is something more than surgery alone can do. Team work between the surgeon, the radiologist and the radium therapist can give results which are superior, not only in the number of ultimate cures, but also in the amount of relief given to the incurable. Surgical skill has in our time reached such a state of perfection that it is difficult to imagine any great alteration in our results from further technical improvement. One cannot ask for more radical procedures than the operations which bear the names of Sampson Handley and Wertheim, yet these extensive and mutilating operations have modified, but they have not wonderfully improved the outlook of the cancer patient.

"I cannot claim," says Handley, "that the wide adoption in this country of operative measures based upon the permeation theory has led to a great and striking diminution of the percentage of recurrences. I do claim it has deferred them."

It remains for us by team work to improve the lot of the cancer patient. We must not be satisfied with the occasional striking result of which we all can boast and which is the exception and not the rule. We win a little gold, after much endeavour and often at great cost.

The time limit set on these papers precludes me from supporting the following somewhat bald statements with further statistics. Perhaps on another occasion I shall supply the deficiency.

The Use of Radium.

What can we expect from radium? It has nothing to offer us at present for cancer of the stomach and its use in cancer of the œsophagus is as yet purely palliative. In periosteal sarcoma its present value is nil, excepting always the type described by Ewing as "endothelial sarcoma," which is very amenable to the rays. In primary intrinsic cancer of the larynx it is not the best method to use, but pre-operative irradiation is valuable and the palliative use of radium is established. But lympho-sarcoma, metastatic teratoid tumours of the testis and certain embryonal tumours of the kidney in children respond well. There seems to be considerable evidence to support the contention of Regaud[7] that surgery must yield its place in the treatment of rodent cancer. Basal-celled epitheliomata yield excellent results. Ulcerating growths of the skin and mucous membrane in the region of the lip, mouth, tongue and tonsil constitute a group in which operation can largely be displaced by radium therapy in conjunction with Röntgen therapy. It is when the lymphatic glands are involved that a judicious combination of surgery and irradiation gives the best results. The statistics of Douglas Quick,[4] showing his results in one hundred and forty-eight patients suffering from cancer of the tongue, are worth careful study.

In uterine cancer, the good results obtained from surgical treatment when the *corpus uteri* is involved, make preliminary irradiation a subsidiary but not a negligible factor in the treatment. In the much commoner carcinoma of the cervix, radium has a field in which it has considerably improved the outlook of the sufferer. Even patients in the late stage can be relieved of the fœtid discharge and of the repeated hæmorrhages which make their declining days a burden. I would refer those who desire compartive statistics to *"Le Radium en Gynecologie,"* by Siredey and Gagey, published in Paris last year. In cancer of the breast, radium, according to Handley,[5] has secured a definite position. It relieves or postpones pain and disability, it prolongs life and it often substitutes a painless exitus from internal recurrence for the distressful death associated with external recurrence. The use of irradiation as a palliative is the aspect best known to the average practitioner, but to regard this as its chief function is to ignore the larger part of its services. The moribund cancer patient who has become the reject from other departments of a hospital, has no hope at this stage from radium. It is in dealing with this type of patient alone that radium has a definite mortality. I repeat that the cooperation of the surgeon, the radiologist and the radium therapist offers the best present solution of the cancer problem. In some situations radium must have a leading rôle, in many it has an important minor part. But the cast will not be complete without it.

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THE CLINICAL SIGNIFICANCE OF THE COMPLEMENT FIXATION TEST IN GONORRHŒA.

BY NORMAN M. GIBSON, O.B.E., M.B. (SYDNEY),
Honorary Assistant Medical Officer to the Venereal Department, Royal Prince Alfred Hospital, Sydney;
AND
C. J. WILEY, M.B. (SYDNEY),
Honorary Assistant Medical Officer to the Venereal Department, Royal Prince Alfred Hospital, Sydney; Honorary Assistant Surgeon for Venereal Diseases, Royal North Shore Hospital of Sydney, St. Leonards.

DURING the past few years there has been comparatively extensive employment of the gonococcus complement fixation test, a serum reaction which is similar in principle to the Wassermann test.

This method of examination, however, is less widely used and possibly its usefulness is less fully appreciated in Australia than abroad. This is rather surprising, considering the advantages the test offers under circumstances in which other methods of laboratory examination are but indifferently successful; moreover, serum tests are convenient and expeditious.

While the specificity of the test has not been called into question, the complete interpretation of results from the clinical point of view is still under discussion. What significance in any given case is to be attached to the presence or absence of a reaction or to the changing character when the same patient's serum is examined on consecutive occasions?

In the following review of these clinical aspects of the test, which naturally claim the clinician's chief attention, no attempt is made at actual description of technique, any unqualified reference to which is intended to mean that now used by us and described elsewhere.[1]

For certain reasons explained hereafter considerable attention has been directed by workers in this field to various developments and refinements of technique,[2] so that at this present time it is possible to produce, subject to certain qualifications applying to all complement fixation tests, results of general uniformity and comparative delicacy.

Since 1916 we have followed the accepted modifications of this test, applying it in the earlier years to many and latterly to nearly all the patients who passed through our hands. This experience has been convincing of the value of the test, provided it is carried out by a laboratory worker of adequate training in serological methods and that a satisfactory technique is employed.

In discussing the clinical significance there are certain collateral considerations on the technical side which require to be stated before any conclusions can be drawn as to interpretation of results.

The Immune Process.

The precise nature of the protective mechanism of the body in gonorrhœa is not entirely clear.

Are antibodies the chief method of combating the disease or is this accomplished by phagocytosis or some other immune process?

Our conception of immune processes has undergone considerable modification in recent years, largely as a result of physico-chemical researches. It is probable that these intimate serological problems will ultimately receive a physico-chemical explanation, though doubtless we are a long way from this at present. In the meantime, we are largely dependent for an explanation of the significance of serological tests on clinical experience.

On the clinical side it has to be recognized that a certain measure of immunity following a first attack of gonorrhœa may last for months, years or indefinitely after the exciting cause has ceased to exist. It is perfectly true that one attack of the disease does not protect against subsequent attacks. Furthermore, relapses are common. Nevertheless, in re-infection the disease is usually considerably modified and does not approach the original infection in point of constitutional and local reaction to the toxins of the invading organism.

This suggests that following on one attack of gonorrhœa immune bodies are present in greater or lesser amount subsequently, though not necessarily of course in detectable amounts.

Phagocytosis, though regarded by some as the premier protective process, is possibly only of secondary importance. It is a notable fact, on looking through the microscopic field in a smear of pus from acute gonococcal urethritis, that as a rule most of the pus cells contain no gonococci, while every twentieth or fiftieth cell is stuffed with them. For this and other reasons it has been suggested that the gonococcus may live at the expense of the polymorpho-nuclear leucocyte.

It is possible that the organisms are destroyed by anti-bacterial properties of the serum and then ingested by the polymorpho-nuclear leucocytes, which thus act as scavengers and may be themselves sometimes preyed upon.

It is difficult to estimate exactly how far the presence of complement-fixing properties in the serum is to be regarded as a measure of immunity; but it is a significant fact that a relationship to the clinical condition and future course of the disease is capable of being established.

Diagnostic Value.

In a general way there is a concordance in results between bacteriological examination for the gonococcus and the serum test.[3] In comparing the two it is not intended to infer that the former can be dispensed with or that both methods of examination should not be simultaneously practised. The gonococcus can be demonstrated sooner or later in smear and culture in most gonorrhœal infections. However, the examination of frequent consecutive specimens from patients suspected of suffering from chronic gonorrhœa entails great labour. A complete examination includes culture of urethral discharge, of urine and of the secretion obtained by prostatic and seminal expression. It is usual for the gonococcus not to be constantly present in specimens taken for examination. In fact, the intermittency with which the gonococcus is capable of demonstration in some instances, is a familiar enough experience to those who are in the habit of

looking for it. Moreover, in common with other methods the method of smear examination is not free from possibility of error. In chronic affections gonococci sometimes assume a more or less atypical morphology and certain cocci which retain the stain in the Gram method of staining and which occur in this type of condition, are very apt to suffer decolorization and be mistaken for gonococci.

The advantages of the serum test are its easy applicability, since it requires only the assistance of a pathologist, and the fact that if a positive reaction be obtained, the diagnosis may be arrived at in a very much shorter time than by the method of films and cultures. A considerable amount of experimental work has been recorded and a general agreement has been established as to the specificity of the test, namely, that a positive reaction is an indication that the patient under examination has or has had gonorrhœa.

A reaction is obtainable at varying times after the onset of the disease, usually within two or three weeks. This corresponds with the extension of the inflammation from the anterior to the posterior portion of the urethra. In the early stages of the infection, when the reaction cannot be obtained, the gonococcus is usually easily capable of demonstration, both in film and culture, and, apart from this, the clinical aspect of the case is usually sufficiently convincing.

When the disease has extended to the posterior portion of the urethra, a positive result is obtained in a very appreciable proportion of instances, as illustrated by some figures from our records. The serum from each of two hundred and ninety patients suffering from vesiculitis or prostatitis or both was submitted to the gonococcal complement fixation test. A reaction was obtained in two hundred and four instances and in eighty-six no reaction could be obtained.

We do not claim that the gonococcus was isolated from all these patients. Therefore it is probable that some of the patients whose sera failed to produce a reaction, were not suffering from a gonococcal condition. It is difficult to state precisely at what stage in the course of the disease the reaction may first be observed. We are not convinced that positive results can be obtained in very early stages. When this appears to be the case, the disease can usually be shown to be a recurrence of a pre-existing infection. In point of fact many so-called second attacks are recurrences, though they are not always recognized as such. Therefore it would appear that involvement of the posterior portion of the urethra is necessary for the production of a positive reaction in the serum. In many patients commencing involvement of this portion of the canal is not accompanied by obvious clinical signs and may indeed be symptomless. Therefore, in many patients suffering from early gonorrhœa it is impossible to tell the precise moment at which the inflammation has extended.

From the anatomical point of view, extension of inflammation to the posterior part of the urethra would be expected to result in an increased reaction on the part of the body. Owing to the rich vascular and lymphatic supply, inflammatory extension is at first checked at the border of the posterior portion, but when the advancing inflammation once breaks the barrier and affects the extensive surface area of the posterior portion and its adnexa, it is only to be expected that it should be accompanied by an increased liberation of toxins and consequently an increased reaction on the part of the body.

The serum then shows a positive result when examined by the complement fixation test. The reaction becomes most intense in the metastatic or toxic complications of the disease, such as iritis and arthritis, and extension to the epididymis in the male and to the uterine adnexa in the female.

Priestley[4] believes that a positive reaction does not tend to occur in the female so early as in the male and considers that this can be explained on anatomical lines. It is probable that the short female urethra and patulous gonorrhœal cervix provide less opportunities for absorption of toxins than the posterior part of the urethra and adjoining glands in man.

A point worth noting is the influence of vaccines. While the ordinary preparation hardly influences the test, detoxicated vaccine produces a strong and persistent reaction. Lees,[5] for example, noted that the antibody produced in his own blood by the injection of detoxicated vaccine of 7,500 million organisms remained present for four and a half months.

The test is of the greatest value in the differentiation of gonococcal lesions from others simulating them. Gonococcal lesions which simulate other affections, are chiefly of the metastatic or toxic variety and the serum of patients so affected will show a positive reaction in practically every instance. Since metastatic complications of gonorrhœa may be present without obvious signs of local disease, this method of examination may afford a reliable diagnostic aid.

Significance in Prognosis.

Those patients in whose sera an early and definite positive reaction is obtained, do well. This is to be regarded as a sign of the patient's good resistance against the disease. Quite apart from laboratory evidence, this agrees with the familiar clinical experience that extension of gonococcal infection to the posterior part of the urethra is by no means a bad prognostic feature. A further point worth noting is that patients with chronic anterior gonococcal urethritis in whose serum the reaction almost invariably fails to occur, are clinically among the most difficult to cure in venereal practice.

The serum of patients whose general health is low, may fail to yield a reaction, even though the disease be complicated. When the general health is restored, the reaction may then occur. This was so striking a feature in treating venereal disease among soldiers abroad, that we were in the habit of sending on leave certain suitable patients falling into this category.

These seems little doubt that antibody formation in the degree in which it is capable of detection by laboratory tests, is more or less proportional to the absorption by the blood of autolytic products; fur-

ther, that complement fixing substances are definitely associated with the disease-resisting powers of the blood serum. For the rest, it is natural enough that the production of these substances should be more easily provoked in some individuals than in others; the significance of this, of course, can only be interpreted on the basis of clinical experience.

Criterion of Cure.

The serum of the majority of patients suffering from gonococcal urethritis is capable of showing a positive reaction at some stage or other of the disease. Usually this happens when the posterior part of the urethra becomes involved in the first few weeks of the infection. The reaction outlasts the clinical cure; subsequently it becomes less definite and finally it fails to occur.

In the serum of patients whose condition is complicated by local extension of the disease or by metastatic involvement, a strongly positive reaction is obtained and the final disappearance of the power of the serum to react is usually slower than in the serum of patients whose conditions are not so complicated. But even in the latter class the reaction can very seldom be detected for longer than five or six months following the clinical cure.

A persistent positive reaction means in the vast majority of instances than an infective focus has persisted in the posterior part of the urethra. If such a patient receive an adequate physical examination, definite clinical evidence can usually be found of chronic inflammatory trouble in the prostate, seminal vesicles or posterior part of the urethra. In the metastatic or toxic complications of the disease, as arthritis, iritis and the like, a similar involvement is almost invariably present. The complement fixation test, therefore, is confirmatory in nature and supplementary to such an examination; nevertheless, when for any reason a complete physical examination is not undertaken, the complement fixation test becomes an easy and reliable method of taking evidence of the presence of an infective focus in the posterior part of the urethra. We regard permanent disappearance of the power of the serum to react as one of the criteria of cure to which a patient suffering from gonorrhœa should, whenever possible, be required to conform.

The value of the test as one of the criteria of cure has been called into question by Priestley.[4] He pointed out that antibody formation in the degree capable of determination by laboratory tests soon ceases after a free outlet for the gonococcus and its products has been established. Hence he concluded that its value lay in the power of recognizing hidden foci of infection and that its dependability as one of the tests of cure was not justified.

We cannot agree with this interpretation. After all, the mechanical treatment of gonorrhœa is merely the application of the established surgical principle of drainage. It follows that the provision of a free outlet for the gonococcus and its products is the particular aim and object of our chief therapeutic measures. If this condition of drainage is maintained, it results in the cure of the patient, provided he is endowed with a sufficiency of natural immunity.

Therefore it would appear that if the power of the serum to react be permanently lost, it is reasonable to regard this as one of the pieces of evidence which, taken in conjunction with other evidence, justify the medical attendant in pronouncing a verdict of cure.

In considering the significance of a change in the power of the serum to react, it is important to recognize the fact of certain possible variations in results when the same serum is examined repeatedly. It must be emphasized that conclusions regarding the state of the patient can scarcely be drawn unless the power of the serum to react be permanently lost. For certain reasons, explained hereafter, it is inadvisable to base conclusions on minor quantitative differences in consecutive examinations.

If this be done, there is danger of imbuing the reaction with an illusory attribute of precision in the quantitative sense. This will at once be plain if certain technical difficulties are realized.

For instance, the absence of accurate information as to types of the gonococcus prevents the production of a constant and uniform antigen, while there are certain other disabilities common to all complement fixation reactions, such as a variable source of complement and red cells and the absence of a fixed relationship between hæmolytic power and deviability on the part of different specimens of the former.

Furthermore, sera may vary in their anti-complementary properties and the amount of normal anti-sheep hæmolysin they contain. Owing to the usually small area of surface affected by the gonococcus, the complement fixation test in gonorrhœal infections tends to be relatively weak as compared with the Wassermann reaction. Therefore, various devices are employed to sharpen it. The procedure of fixation in the cold is now usually employed with a view to increasing the delicacy, but such a procedure makes complement more liable to non-specific fixation.

Another possible source of error is that in Thomson's method of performing the test which is commonly adopted; the quanitative expression of results is arrived at by small variations in the amount of complement present in three separate tubes containing fixed amounts of serum and antigen.

It will be appreciated from this rather formidable list of technical difficulties that in performing the test the greatest care would require to be taken in regard to the accurate standardization of reagents and the careful comparison of sera under test with control sera.

Shortcomings.

This account of the significance and value of the test may be concluded with a statement of the shortcomings and apparent inconsistencies. It may be said, however, that few laboratory methods are free from these.

In the first place, there is a certain proportion of sera from patients with gonococcal infection

which fail to react. This is a question of failure to manufacture antibodies in recognizable amount and is usually due to one of two causes. Either the anterior part of the urethra only has been involved or the patient is deficient in natural immunity. This failure of the test to produce a reaction under certain conditions can scarcely be held to detract from its practical value taken as a whole. It will be seen to compare favourably in its final results, for example, with the Wassermann test. A reaction cannot be obtained to the Wassermann test in early syphilis, the reaction varies in different stages of the disease and in different individuals and is not invariably obtained in any phase of the disease.

In the second place there is a certain small proportion of sera of patients not suffering from gonorrhœa which give a positive reaction. Certain technical difficulties have already been referred to, but in spite of taking all due precaution, it has to be admitted that individuals are found occasionally whose serum will yield a positive reaction, in whom no clinical signs of gonorrhœa are discoverable and from whom no history of the disease can be elicited. From our observations we would estimate this proportion as less than 2%. Other observers have noted a similar small percentage of aberrant results.

It should be realized, however, that the complement fixation test is supplementary to the physical examination of the patient. Therefore, in those rare instances in which the significance of a positive reaction is not confirmed after a complete examination of the patient, the result should be disregarded. After all, when there is doubt the path of clinical experience is still, as formerly, the safest to tread.

Conclusions.

From experience extending over several years we draw the following conclusions:

1. The complement fixation test in gonorrhœa is a valuable diagnostic aid when interpreted with due regard for and in proper relation to clinical findings and when its essential limitations are realized.

2. In the majority of cases the permanent loss of power of the serum to react indicates the cure of the patient. This result is an ideal to be consummated, whenever possible, before a patient is discharged from medical supervision.

3. A positive reaction may persist for a variable time after the clinical cure; if the reaction persist longer than six months a focus of infection, probably in the posterior part of the urethra, almost certainly exists.

4. Failure of the serum to react in a patient with complications of gonorrhœa is an evidence of low resistance and is unfavourable from the point of view of prognosis. On the other hand, a positive reaction obtained early in the course of the disease makes the prognosis favourable.

5. The test, being highly specific, is of the greatest value in differentiating gonococcal lesions from other conditions simulating them.

6. Finally, whether used as a diagnostic agent or a criterion of cure, the test should not supplant, but be used as an adjunct to clinical methods, which are more important than any means of laboratory diagnosis.

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Reports of Cases.

MASTOIDAL DISEASE WITH LATERAL SINUS INFECTION.[1]

BY HUBERT M. JAY, M.B., B.S. (ADEL.),
Surgeon to the Ear, Nose and Throat Department, Adelaide Hospital.

THE following case is thought worthy of report:

Case History.

Mr. R.H.M., aged twenty-three years, was sent to me by Dr. Bonnin on March 17, 1923. He gave a history of having a discharge from the right ear from the time he was fourteen years of age. For the previous twenty-four hours he had had severe pain with cessation of discharge following a "cold." The onset of pain dated from the time of the cessation of discharge.

On examination a minute perforation was discovered in the posterior superior quadrant of the right *membrana tympani*. No discharge was present in the canal, but the perforation was apparently sealed by cerumen and pus. The membrane otherwise was normal. There was no mastoidal tenderness. The perforation was cleaned out in the hopes of re-establishing drainage and drops composed of *glycerinum acidi carbolici* with *spiritus vini rectificatus* were ordered. The patient was told to report in twenty-four hours.

On March 18, 1923, much pain was present and the patient was sent to hospital for observation. The temperature on admission was 38.6° C. (101.6° F.).

On March 19, 1923, the patient had a rigor, the temperature was 39.4° C. (103° F.). At 4.30 a.m. the patient vomited. I operated at 8.30 a.m. and was assisted by Dr. Bonnin. Prior to operation information was elicited that the patient had had "two or three shivering attacks" in the previous twenty-four hours. The first stroke of the gouge on the mastoid cortex produced pus. The antrum was found to be large and to have eburnated walls. Extensive disease was present in the mastoid cells. The diseased cells were thoroughly removed, but the "bridge" was not touched, as the history and signs indicated a mastoid rather than a middle ear infection. In curetting out what was apparently an infected mastoid cell in the neighbourhood of the lateral sinus, the curette penetrated the latter and there was a copious flow of blood from the wound. This was so severe as to necessitate plugging the sinus itself before the bleeding could be checked. Looking back on the operation, I think it would have been a much more sound procedure to have endeavoured to bite away the bony wall of the sinus to plug the perisinus space. At the time the flow of blood was so profuse that I felt glad to have stopped it at all. At any rate it satisfied me concerning the question of sinus thrombosis. A plastic operation was performed and the posterior incision sewn up so as to give a better view subsequently of the operation area. The cavity was plugged with gauze impregnated with bismuth, iodoform and paraffin paste. As the bridge and membrane were not interfered with, the operation was really similar to that described by Heath. At 6 p.m. the temperature fell to 36° C. (97° F.).

[1] Read at a meeting of the South Australian Branch of the British Medical Association on April 26, 1923.

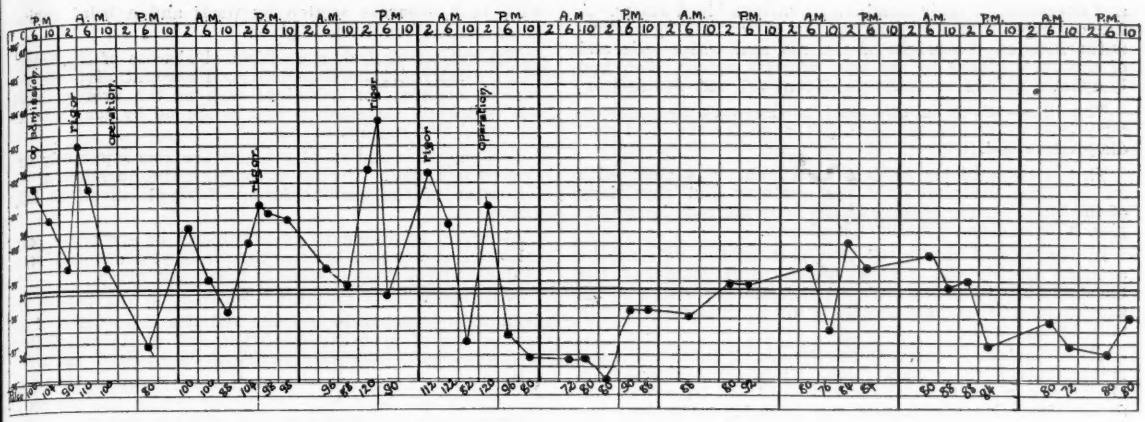

CHART SHOWING TEMPERATURE AND PULSE RATES OF DR. H. M. JAY'S PATIENT WITH MASTOIDAL DISEASE.

On March 20, 1923, the temperature at 2 a.m. was 38° C. (100.6° F.). At 10 a.m. it was normal. On removing the packing from the sinus, profuse bleeding necessitated repacking. At 2 p.m. the temperature was 38.4° C. (101.2° F.); the patient had a rigor.

On March 21, 1923, the packing was removed; no bleeding occurred and the patient had a rigor. He had been very restless all the morning. At 4 p.m. Dr. Thorold Grant withdrew a specimen of blood for culture and at the same time injected ten cubic centimetres of anti-streptococcal serum.

On March 22, 1923, the patient had another rigor at 2 a.m.. The temperature was 39° C. (102.2° F.) and it subsequently fell to 36.2° C. (97.2° F.) at 10 a.m.. I saw the patient at 9.30 a.m. and thought I could detect a slight thickening along the course of the internal jugular vein. I decided to tie the latter. I operated at 12.30 p.m. and was assisted by Dr. Bonnin. The jugular vein was apparently normal. Nevertheless, in view of the obvious drainage into the general circulation, Dr. Bonnin and I decided to tie it. The result exceeded expectations and for forty-eight hours the temperature did not rise above normal The blood culture showed streptococci in small numbers.

On March 25, 1923, the temperature was 37.9° C. (100.2° F.), due, I regret to say, to suppuration in the incision in the neck. On draining this the temperature next day became sub-normal and the patient made an uninterrupted recovery.

At subsequent dressings, it is interesting to note, a small bead of pus appeared over the site of the occluded lateral sinus. This raised the question of a perisinal abscess missed at the time of the first operation.

Comment.

To my mind there are three points of interest in this history:

(*i.*) There was absence of mastoidal tenderness.

(*ii.*) There was free bleeding on opening the sinus and yet undoubted systemic infection occurred from this source. I can only surmise that there was a perisinal abscess which would have been discovered and drained had not the necrotic sinus wall given away at the touch of the curette and the field been occluded by a rush of blood.

(*iii.*) The dramatic fall of temperature and the cessation of rigors on tying the jugular vein.

Whether the idea that the disease process was located solely in the mastoid, the middle ear remaining free, is correct, remains to be seen. Up to date, however, the cavity is clean and has almost epidermized, so it seems probable that this is so.

May 22, 1923.—Since the attached report was made the cavity has completely epidermized and there is no discharge from the middle ear. The patient has been out of my hands for fourteen days.

Reviews.

MEDICAL PATHOLOGY.

A COMPREHENSIVE work of six volumes on medical pathology has been published under the title, "*Précis de Pathologie Médicale.*"[1] The work is edited by F. Bezançon, Marcel Labbé, Léon Bernard and J. A. Sicard. Although described as a *précis*, each volume consists of closely printed matter extending through some five or six hundred pages. The fourth volume, now under review, is made up of two parts; the first part is devoted to diseases of the blood and the blood-forming organs, the second to diseases of the kidney. The first part is written by P. Émile Weil and Marcel Bloch and the second part by Pasteur Vallery-Radot. These authors are acknowledged masters of their specialty and give clear and lucid expositions of the modern views and technique of each subject. Both parts are very profusely and exquisitely illustrated by both black and white and coloured views and drawings and the subject matter in each is dealt with in a thoroughly scientific and up-to-date manner.

The sections dealing with treatment are short and concise, stress is laid upon the indications for treatment and elaborate details are avoided.

The first part of the volume, on diseases of the blood and hæmopoietic organs, is a work of which the authors have just reason to be proud. This portion of the volume is considered under two headings, the first dealing with the anatomy and physiology of the blood and blood-forming organs, the second with the various pathological states of each, not in the usual way by considering each definite so-called disease, but by means of various morbid clinical syndromes. In this way the classification of blood diseases of a controversial nature is assigned a more or less unimportant rôle and the matter placed before the student in truly scientific manner.

In the portion dealing with the anatomy and physiology of the blood there is to be found a very full and accurate description of the various staining methods whereby the blood picture under the microscope may be brought under the notice of the investigator. Among these, however, no mention is to be found of that most useful and rapidly applicable stain identified with the name of Louis Jenner.

A full meed of praise is given to that master of hæmatology, Ehrlich, in connexion with his wonderful and laborious researches into the different types of leucocyte, their origin and the significance of pathological increases

[1] "Précis de Pathologie Médicale: Tome IV., Maladies du Sang at des Organes hématopoïétiques," par MM. P. Émile Weil et Marcel Bloch; "Maladies des Reins," par Pasteur Vallery-Radot; 1922. Paris: Masson et Cie; Post 8vo., pp. 624, with 150 figures and 4 coloured plates. Price: Frs. 25 net.

and decreases in their numbers in various blood states. A full description is also given of the views held by various authorities on the origin of the red and white cells and of the parts played by the bone marrow, spleen, liver and lymphatic glands in both blood renewal and destruction.

The illustrations in this part of the work are particularly instructive and interesting, though for the most part diagrammatical.

This portion of the subject is brought to a close with an excellent description of the anatomy and physiology of the blood regulating organs, the bone marrow, lymphatic glands, spleen and hæmolymph glands.

In the second section of this part of the volume the authors discuss the various pathological states of the blood and blood-forming organs and commence with a classification of the various morbid clinical syndromes which may be met with.

These various syndromes are discussed under six separate chapters, as follows: (*i.*) Those characterized by alterations in the functions of red blood cell formation and destruction. In this chapter the following conditions are dealt with: the various forms of anæmia, the various blood states in which hæmolytic changes are seen and, lastly, conditions associated with polycythæmia.

(*ii.*) Those characterized by alterations in the functions of white blood cell formation and destruction. In this chapter a full account is given of those blood conditions associated with leucocytosis and leucopenia.

(*iii.*) Those showing conditions in which there is seen hyperplasia of the hæmopoietic organs the nature of which are hitherto unknown and which are therefore difficult to classify. This group includes the various leuchæmias.

(*iv.*) The various neoplasms of the hæmopoietic parenchyma: myelomata, lymph-adenomata, tumours of the spleen and thymus and secondary carcinomata of the hæmopoietic organs.

(*v.*) Those syndromes due to the localization of infections upon the hæmopoietic organs. This includes inflammatory hyperplasias and infective neoplasms, specific and otherwise. Under this heading is described also that remarkable skin affection known as *mycosis fungoides*, as well as the effects of leprosy, syphilis and tuberculosis upon the bone marrow, lymphatic glands and spleen. Reference is also made to changes in the spleen due to kala-azar and malaria and the various conditions in which splenomegaly forms an outstanding feature.

(*vi.*) Syndromes the result of alterations in the functions of the plasma secretion, including such conditions as hypo- and hyper-coagulability and the phenomena of shock.

Under these various headings the whole subject of blood pathology is dealt with in a most interesting and novel manner. This method of dealing with the subject gives to the student a fascinating outline of the whole realm of blood pathology.

The second part of the volume deals with diseases of the kidneys and here again the subject is first broached by a brief description of the main points in the anatomy and physiology of these organs and of the whole urinary system. The authors then deal in a very interesting manner with the subjects of albuminuria, hæmaturia and anuria. The subject of the various forms of nephritis is then entered upon, but prior to its discussion a short historical *résumé* is given of this important subject.

A very full and lucid account of the various forms of both acute and chronic nephritis is given and at the same time great stress is laid upon the importance, as regards treatment and prognosis, of the estimation of chloride and nitrogen retention in the blood stream. The sections dealing with the treatment of the various forms of nephritis are particularly good and the same may be said of those portions that deal with prognosis in these important conditions.

The subject of hypertension is also well considered. Then follows a description of active and passive congestions of the kidneys and a full account of the kidney in cardiac disease.

Amyloid or waxy degeneration of the kidneys is dealt with in a separate section by itself and a brief clinical study of this condition is given.

The subject of pyelo-nephritis and abscess of the kidney is very fully discussed and a good account given of the various channels of infection, such as the ureters, blood and lymphatic streams, as well as spread by contiguity of other infected organs.

Peri-nephritis and renal lithiasis are also separately considered and under the latter heading the question of the formation of the various forms of renal calculi is fully discussed.

Attention is drawn to such subjects as nephritic colic, calculous anuria and hydronephrosis in patients with renal lithiasis and a good *résumé* of treatment given.

Tuberculosis and syphilitic affections of the kidney are dealt with in separate sections and the importance of the recognition of syphilitic nephritis and of its satisfactory treatment by appropriate measures is insisted upon.

Parasites of the kidneys, such as strongylus, bilharzia and filaria are dealt with briefly, as is also the subject of actinomycosis and sporotrichosis of these organs.

The question of malignant growths of the kidneys is discussed very fully and excellent accounts are given of the various growths, such as adeno-carcinoma, hypernephroma and sarcoma.

This part of the subject is closed with a clinical study of malignant disease of the kidneys in the adult and in infancy and a brief account of the treatment of these conditions.

Cysts of the kidneys and hydronephrosis form the subject of two small sections and the whole is brought to an end by a good clinical and pathological account of the mobile kidney.

MATERIA MEDICA AND THERAPEUTICS.

THE eleventh edition of Sir William Whitla's well-known book, "Elements of Pharmacy, Materia Medica and Therapeutics,"[1] differs very little from its predecessors. The author gives a clear, condensed account of the *materia medica* and pharmacy of most of the drugs in general use. The book contains the fruits of a very wide experience in therapeutics, but it is somewhat disappointing to find that very much recent work, both pharmacological and clinical, on the actions of important drugs is entirely neglected. For example, there is no mention of Gordon Levy's work on chloroform, which is surely important enough for some discussion. There is little that is helpful to the student in the description of the action of the drug.

Again, in the section on digitalis, no notice is taken of the work of Mackenzie, Cushny and their successors. Great stress is laid on the importance of the vaso-constriction produced by the drug, which has been shown again and again to be negligible in any therapeutic dose. In addition to this, the old fetish of the danger of digitalis in aortic regurgitation is retained. In fact, all the work done on digitalis in the last twenty years is entirely neglected. The section cannot be accepted as an up-to-date presentation of the therapeutics of the drug.

The action of adrenalin in asthma is not mentioned. It is merely stated that the drug has no action on the bronchial musculature. This is surely contrary to current teaching.

On the whole, there appears to have been very little attempt to bring the large and pre-eminently important section of therapeutics up to date and this seems a grave blot on the work.

As it stands the book cannot be recommended to medical students or practitioners, though doubtless it will be of value to students of pharmacy.

[1] "Elements of Pharmacy, Materia Medica and Therapeutics," by Sir William Whitla, M.P., M.D., D.Sc., LL.D.; Eleventh Edition; 1923. London: Baillière, Tindall & Cox; Crown 8vo., pp. x. + 678, with twenty-two figures in the text. Price: 10s. 6d. net.

The Medical Journal of Australia

SATURDAY, JUNE 9, 1923.

A Lost Opportunity.

DURING the period immediately preceding the Conference of Premiers the Federal Ministry announced in the public press its intention of asking the Conference to appoint a Royal Commission to consider the systems in existence for the protection of the health of the public and to trace the causes which have led to a want of uniformity and coordination in the shouldering of administrative responsibility in this connexion. It was further pointed ont that the Federal Ministry held the view that national economy was vitally affected by this lack of uniformity and coordination. For years we have been insisting on the paramount necessity of a frank recognition of the economic value of science and of the soundness of any financial scheme which depends on the careful investment of money in properly tested measures of preventive medicine. It is a gratifying sign that at last a Federal Ministry has realized that health is a real asset and that national efficiency and prosperity depend on the relative infrequency of disabling illness. The cost to the nation as well as to the individual of illness and premature disablement is almost incalculable, while every avoidable death means a heavy financial loss to the whole community.

In the preliminary discussions the State Premiers disclosed an unmistakable determination to yield nothing to the Federal Government. On May 26 and 28, 1923, the Prime Minister explained the object and nature of his proposals. The Acting Premier of Victoria opposed the appointment of a Royal Commission on the ground of expense. It is difficult to take this objection seriously. The cost does not usually deter a Ministry from appointing a Royal Commission to inquire into, let us say, the cause of a political scandal. If the objects of this Commission were realized, the financial gain to the Commonwealth would be so great that this bagatelle of expenditure would disappear altogether in the reckoning. The Acting Premier of New South Wales announced that he was prepared to support the appointment of the Commission, provided that the interests of the States were properly safeguarded. In the end the Premiers resolved that the health officers of the Commonwealth and the States should meet each year to discuss the question of national health and that they should furnish to their respective Governments reports of these meetings. It requires no political genius to realize that these annual discussions would be sterile and futile. There is a defect of a fundamental nature and it cannot be remedied by tinkering. The legislative enactments in the several States are to a great extent obsolescent and clumsy instruments, ill-adapted to the purposes of modern hygiene. Energetic, coordinated effort to eradicate preventible diseases does not exist in any State, partly because the authority finds the laws too cumbersome to administer effectively and partly because the policy of the department has to be adjusted to the financial and political control of Ministers who are not concerned with the prevention of disease.

In the year 1919 the Federal Committee of the British Medical Association in Australia considered a scheme for the improvement of the protection of the health of the community. In the course of the debate it was pointed out that, however desirable it might be to effect uniformity of administrative measures by the transference of the control to the Federal Government, these duties could not be taken over from the States without an amendment of the constitution. As this was regarded as impracticable, it was resolved:

> That the administration of health affairs should be retained by the State for the present, with the cooperation of the Federal authorities.

Four years have passed since this resolution was adopted. During the course of these four years the Ministry of Health of the Commonwealth has been created and this department has engaged in campaigns of considerable importance. There has been cooperation with the State authorities in connexion with the Hookworm Campaign; the Federal Department has obtained a frank welcome from the States in the matter of industrial hygiene and sanitation and it has provided useful machinery in country laboratories scattered throughout the Common-

wealth. But despite these new measures, despite the proffered assistance tendered and sometimes accepted by the States in association with epidemic and infective disease, there is still a great want of uniformity and cooperation. The question may therefore again be raised, as Mr. Syme, the Chairman of the Federal Committee, raised it four years ago, whether the administrative responsibility should be transferred to the Federal Government or whether it should be retained "for the present" by the States. The surrender of the sovereign rights of the States in this particular regard to the Federal Government need not arouse strong opposition, since the protection of the health of the public should not be a political matter and is not a popular theme for politicians to conjure with. In this vast continent it would be necessary in any scheme for unification of the administration of the laws governing the protection of the public health to dispense a large measure of local autonomy. Australia exists to-day as a nation, not as a congeries of colonies with frontiers and independent interests. We need a strong Australia and the protection of health means the same thing in Western Australia as it does in Queensland. It is extravagant, dangerous and irrational to establish seven sets of health laws for a community of five and a half million souls. And if in some future time the growth of the population of this immense Commonwealth renders centralized control difficult or clumsy, it would be easy to decentralize on a uniform basis with the retention of a central coordination. It would seem that uniformity under the present system is an unattainable objective.

The Premiers have refused the very conservative proposal to seek the cause of the most obvious defects. Had they accepted the invitation, it would have been justifiable to have complained that the suggested Royal Commission was not a sufficiently powerful or drastic engine to effect the reform that must come sooner or later. As it is, the Premiers have produced the strongest evidence of the unsatisfactory state of affairs. The control of the health of the public is retained in their hands for political purposes and consequently progress is stemmed as long as they maintain this obstinate attitude.

CLINICAL RECORDS.

FROM time to time readers of THE MEDICAL JOURNAL OF AUSTRALIA level the criticism at those responsible for the production that too few clinical records are included in the journal. The complaint is justified, although it is misdirected. In the great hospitals of the capital cities there is an abundance of material of great value for instruction purposes. Some of it is used in the training of medical students, but the larger part is allowed to remain unrecorded and unutilized. It is recognized that the didactic value of common affections is greater than that of rare cases, at all events to the isolated general practitioner in country districts. From time to time general and special invitations have been issued to medical superintendents and others attached to the hospitals to contribute regular records with commentaries to these columns, but the response hitherto has been meagre. It has also been brought to the notice of doctors in large general practice that they should permit the medical profession to share the advantages of their experience by submitting clinical histories and short discussions on the diagnosis and treatment of selected affections. The busy practitioner apparently begrudges the time needed for the writing of the reports and is disinclined to add to his daily burdens. He forgets that by teaching others, he himself learns. The task of setting out all the facts concerning the history of the patient's illness, including his previous health history and that of other members of his family, and concerning the physical signs, subjective symptoms and other data relative to the illness necessitates the application of a sharp criticism which must tend toward the elimination of ill-founded deductions and hasty conclusions. The reduction into precise words of the arguments on which a diagnosis is based, leads to the removal of hazy, half-formed ideas and their replacement by logical inferences. Moreover, experience gained by repeated teaching will bear fruit in enhancing the reputation of the practitioner as an accurate observer and a reliable clinician. No man is so busy that it becomes impossible for him to analyse the condition of his patients. If the facts and interpretation are clear and well defined, the task of com-

mitting the record to paper means a very small expenditure of time and energy. In these circumstances it would seem that there is litle valid excuse for the neglectful waste of good teaching material in Australia. Medical practitioners will be wise if they will acquire the habit of recording in some detail series of cases or individual cases of interest.

The value of these records will depend on the possibility of reviewing the significance of special signs and symptoms in the diagnosis and prognosis of selected diseases and on the accumulation of wide experience concerning the action of therapeutic measures. Many doctrines that are accepted to-day, are based on slender beliefs and pass unchallenged, because clinicians of eminence have repeated them without a sufficient amount of critical control. These fallacies are disclosed as accurate observations and careful inquiries are presented to the world of medicine for consideration and review. THE MEDICAL JOURNAL OF AUSTRALIA should be regarded as a perpetual instrument of post-graduate teaching and all who have the ability of expression and the opportunity to provide suitable lessons, should contribute their quota for the general good. There is always space for short reports in these columns. The requirements for this form of contribution are first and foremost ability to observe, secondly a general knowledge of the correlation of clinical signs and pathological changes and, lastly, goodwill to describe the relevant facts and deductions in short, unambiguous English sentences. It is not necessary for the contributor to have at his command the most recent literature on the particular disease with which he is dealing. Often a dissociated observation is more valuable if it is uninfluenced by current teaching. Nor need the author be skilled as a writer, provided that he avoids slang and aims at simplicity in diction. He should remember that his object is to convey a message, not to produce an epic.

Apart from the records of observations in common affections, the relation of rare or even unique conditions has a definite place in these columns. The medical practitioner who recognizes that chance has enabled him to investigate something that is unusual and but ill understood and who neglects to impart the knowledge to his colleagues, is inflicting an injury on his profession and on the world. Medical knowledge is common knowledge and must be shared by all alike.

Several of the Branches of the British Medical Association in Australia have adopted the valuable expedient of holding clinical meetings at large public hospitals. As a rule the programme at these meetings is too full and the members attending have difficulty in examining all the patients and in discussing their affections. The records of these meetings would be more instructive if fewer patients were presented and if more time were devoted to debate on the diagnosis and treatment. Similarly at the post-graduate courses there is a tendency to exaggerate the amount of clinical material and to select the rare rather than the instructive. It would, perhaps, be advantageous if those who read notes at clinical meetings or hold demonstrations at post-graduate courses, would endeavour to complete the story by securing the attendance of patients who have been discharged after cure, so that the accuracy of the diagnosis and the effect of treatment might be tested from the records and from specimens and other objective material.

Lastly, attention should be directed to the waste of valuable material that obtains in large hospitals in cities where there is no medical school. It has been suggested that arrangements might be made with the teaching staff of the nearest medical school for the utilization of this excellent material for clinical instruction. In Perth, for instance, there are medical practitioners competent to teach clinical medicine and clinical surgery and a wealth of pathological and clinical material at the Perth Hospital. Senior students could spend many months studying the patients in the Perth Hospital with advantage. Vacation classes and even term classes could be formed, especially for students whose homes are situated in the west.

The moral of the story is that at the present time there is much first-class clinical material going to waste and means are available to arrest this loss of opportunity. The remedy lies in the hands of the medical profession throughout Australia.

Current Comment.

GASTRIC AND DUODENAL ULCER.

For more than a quarter of a century it has been recognized that the difficulties associated with the treatment of gastric and duodenal ulcer and with the prevention of the sequelæ of these conditions cannot be overcome until all the ætiological factors have been ascertained. The problems involved have become increasingly complicated as time and opportunity for investigation have come and gone. Formerly it was thought that the causation of ulcer of the stomach was different from that of the first part of the intestine. The frequency of duodenal ulcer after the destruction by burning of considerable areas of skin gave rise to this conception. Various hypotheses were adduced to explain gastric ulceration, but direct evidence was not easily discovered. Bolton's ingenious experiments brought a complete change and for a time appeared to offer an acceptable solution of the problem. The possibility of the production of a gastro-toxic substance as a reaction to the absorption of gastric epithelium seemed to provide an adequate explanation of the relatively frequent ulcers of the pyloric mucosa. Further study disclosed the fact that peptic digestion played an important part in the development of the ulcer, even if a reactive antibody were essential for the initiation of lesion. A further fact was brought to light as a result of surgical experience. While it had formerly been held that duodenal ulcer was uncommon, it was found that this was by no means the case. On the contrary, the more the surgeon looked into the state of affairs, the more frequently did he find ulcers of the duodenum. Moreover, it soon became apparent that the ætiological factors were largely common to the two conditions. Little by little pathologists were forced to recognize mechanical, biological, chemical and thermic elements in the ætiology of both conditions. The question was consequently raised whether they were not dealing with a group of affections, loosely associated together by the one common lesion of a localized ulcer. In these circumstances it is obvious that additional evidence is only too prone to lead to further confusion. We therefore welcome the attempt made by Dr. G. B. Gruber and Dr. E. Kratzeisen to summarize the more recent views concerning the nature of gastric and duodenal ulcer.[1] They regard peptic ulceration as a lesion of the gastric or duodenal mucosa produced by physical or chemical means in such a manner that localized disturbances of nutrition arise either as ischæmic or hæmorrhagic changes or as toxic or infective processes. Since this definition includes so wide a conception of the causative processes, they consider it to be esseential to seek the exact conditions in the early acute manifestations. It must be pointed out in this place that the authors ignore almost entirely the work done in England and consequently restrict themselves to some extent. This is partly rectified by reference to work undertaken elsewhere on the basis of English work. In medicine, which is held to be international, recognition should be given to all pioneer achievements. The authors can have no valid excuse for ignoring Bolton's work and that of other English investigators.

Experiments on rabbits revealed at an early stage that it was easy to produce erosions of the stomach wall, but it was soon discovered that these erosions appeared readily after manipulations on almost any portion of the intestines. It was further noted that spontaneous ulcers of the stomach occurred in rabbits. Careful experimentation, however, revealed the fact that stimulation of the vagus with pilocarpine or other drugs led to hæmorrhages in the gastric mucosa with cellular exudate in the surrounding tissue and thrombosis of the small vessels. This effect occurred only when free hydrochloric acid was present in the gastric secretion. Nikolaysen regarded this process as a disturbance of the nutrition of the parts, resulting from the strangulation of the nutrient blood vessels caused by the contraction of the muscle fibres of the mucous membrane. He did not believe that the condition was identical with gastric ulcer of man. Haeller took the matter a little farther. He found that spastic contraction of the muscle fibres of the stomach wall in itself does not produce ulceration. On the other hand, paralysis of the vagus, as well as stimulation of the vagus, was found to cause erosions. Haeller demonstrated that a rabbit whose stomach has been exposed, if bled repeatedly, developed gastric erosions. He postulated the hypothesis that gastric ulcer was the result of an insufficient oxygen supply of the gastric mucosa and possibly of a poisoning by carbon dioxide. A considerable amount of similar work tended to produce contradictory results, until it was shown that in domestic animals gastric ulcer arose only when there was a mechanical stimulation or injury to the stomach mucosa and a local disturbance of the circulation. It was further demonstrated that an essential to the production of gastric or duodenal ulcer was the maintenance of a more or less normal gastric secretion. G. M. Smith succeeded in producing gastric ulcer in cats and dogs by introducing bile together with hydrochloric acid. Bile alone proved useless. In the next place, it has been shown that a sudden increase in the blood pressure in the portal circulation leads to the appearance of gastric erosions. Ricker performed a large series of experiments with varying degrees of stimuli and found that it was possible to produce a dilatation of the portal vessels with a consequent flushing of the gastric wall or a constriction of the vessels with resulting ischæmia. By varying the stimulation he could demonstrate a pre-static slowing of the blood stream with dilated vessels followed by stasis. During the pre-static slowing period, there was exudation of blood out of the vessels and at times a resultant formation of infarcts. He emphasized the disproportion between the inflow and the outflow of the blood to the affected part. In his opinion the reflex dysharmony of the vaso-motor mechanism formed the basis of the

[1] "Neuere Anschauugen vom Wesen des Ulcus pepticum ventriculi und duodeni," by Gg. B. Gruber and E. Kratzeisen. (Sammlung zwangloser Abhandlungen aus dem Gebiete der Verdauungs- und Stoffwechsel-Krankheiten.) Band VIII., Heft 2; 1922, Halle; pages 43. Price: 10d..

lesions produced. On the other hand, Hart suggested that if the stimulation of the vaso-constrictor persisted for a sufficiently long time, an ischæmia was produced leading to necrosis of the mucosa. In the immediate neighbourhood of this necrosis the capillaries may dilate and lead to hæmorrhage. More frequently, however, the vaso-constrictors are paralysed and as a result the vaso-dilators exert an increased activity, with the result that the capillaries give way without any ischæmia. It has also been shown that the local disturbance of circulation is certainly not the sole cause of ulcer production. Some observers have endeavoured to attribute gastric or duodenal ulcer in certain instances to some abnormality of the abdominal contents, such as gastric ptosis, but it appears very doubtful whether congenital or acquired abnormalities of this kind even predispose to the condition. Certain investigators have sought a mycotic origin of the ulcers. That fungi, such as *Oidium albicans*, the fungus of thrush, are not infrequent invaders of gastric or duodenal ulcers has been shown by many workers. Askanazy sought to ascribe to this fungus a leading pathogenic rôle, but this view is not shared by the majority. The authors, after considering the work of others and their own experience, come to the conclusion that peptic ulcers arise from a large number of causes. The digestive power of the gastric juice must be unimpaired. The proteolytic ferment in an acid medium acts on the damaged portion of the gastric or duodenal mucosa. The primary damage may be effected by vaso-motor or hæmodynamic disturbances of circulation, by traumatic, mechanical or thermic factors or by chemical or infective agents. These factors act on very localized portions of the mucous membrane. Of all these factors the following are regarded by them as the most important. In the first place, there is the simple blocking of the vessels by means of a thrombus. Then comes the reflex disturbance of the circulation resulting from a local, central or peripheral stimulation. Lastly, the circulatory disturbances may be part of a general cardiac or vascular affection associated with localized congestion and stasis. They distinguish between persons in whose gastric or duodenal mucosa there are ulcerative defects and those who suffer clinically from ulcer.

The second chapter of the authors' monograph comprises a discussion of the factors involved in the maintenance of gastric and duodenal ulcers. After careful consideration of the work carried out and of the observations made both in man and in domestic animals they conclude that the cause of chronicity is usually a local one. Abnormal conditions of the secretory function of the stomach and of its motor activity, associated with unfavourable conditions of nutrition, usually suffice. These local factors are enhanced by the irritating action of the ulcer itself. In some instances it would appear that constitutional anomalies of the vascular or of the visceral nervous apparatus may deter the healing of the acute lesions and thus lead to its persistence in a chronic form.

These findings as far as they go must be accepted, based as they are on repeated experiment and prolonged observation. The authors, like all other workers on the subject, repeatedly emphasize the fact that the ætiology of gastric and duodenal ulcer is extremely complex and that no one factor can be incriminated. That the biological processes may not be ignored has been proven beyond dispute. Given a primary disturbance of the circulation of the mucosa, the absorption of epithelium must result in the further destruction of tissue. It would thus appear that while the digestive function of the stomach is unimpaired, a double vicious circle is produced, with disastrous results to the patient.

That spontaneous healing of duodenal ulcer is common has been demonstrated by many pathologists and surgeons. The authors give further chapter and verse in support of this occurrence. They do not discuss the mechanism of the scarring process. The suggestion has been made that cicatrization of a duodenal ulcer takes place more readily than that of a gastric ulcer, in view of the better chance of the former to escape the action of the proteolytic ferment. It is readily imaginable how after the acute process has worked itself out, so to speak, the production of a gastro-toxic or duodeno-toxic substance may be lessened and eventually inhibited. Some of the work on secretin would suggest that the action of these bodies is evanescent and that their supply is often limited. This would tender an opportunity for a break in one of the vicious circles. There are other aspects of the question that have to be taken into account. The authors do not refer to them in detail.

THE LIPOIDS OF MATERNAL AND FŒTAL BLOOD AT THE CONCLUSION OF LABOUR.

AN interesting study has been made recently by Drs. J. M. Slemons and H. J. Stander on the composition of maternal and fœtal blood at the conclusion of labour.[1] These investigators obtained specimens of blood simultaneously from mother and fœtus at the conclusion of labour in a series of twenty-four confinements. They formed the conclusion that the placenta is permeable to glucose, to amino acids and also to the end products of carbohydrate and nitrogenous metabolism. In regard to fats and lipoids an opposite conclusion was formed. The percentage content of these substances was always less in the blood of the fœtus than in that of the mother; the proportionate difference, moreover, was always variable. Reference is made to the experiments of Ahlfeld who found that maternal blood of a bitch was ten times richer in fat than the blood of pups removed from her uterus. Drs. Slemons and Stander found that at full term human maternal blood contained approximately 900 milligrammes of fat in each hundred cubic centimetres, a quantity at least one-third greater than the normal amount. The cause of this is regarded by them as being a preparatory step to successful lactation. They conclude that fœtal fat is probably synthetized from glucose which is supplied in required amounts by the maternal blood. No evidence in support of this conclusion is offered.

[1] *The Bulletin of The Johns Hopkins Hospital*, January, 1923.

Abstracts from Current Medical Literature.

SURGERY.

Fracture of the Pelvis and Tearing of the Bladder.

GABRIEL MIGINIAC (*Revue de Chirurgie*, December, 1922) reviews the literature of ninety-two instances of fracture of the pelvis associated with tearing of the bladder. Bad results have followed expectant treatment with and without catheter retention so that for the last thirty years or more it has been recognized that an operation should be performed as soon as possible. Whilst examination of the literature shows that surgeons have been undecided on the best form of treatment, suprapubic drainage of the bladder and the cave of Retzius has been the method most largely employed. It is not always easy or possible to say whether the rupture of the bladder is intra or extra peritoneal and whilst infiltration of the cave of Retzius is a valuable sign of extraperitoneal rupture no sign is pathognomic of intra or extra peritoneal rupture. Owing to the presence of the fracture the *a priori* diagnosis of rupture of the bladder is sufficiently difficult and often impossible to decide much less to distinguish between intra and extra peritoneal rupture; so that in practice it is usually necessary to be content with the diagnosis simply of fracture of the pelvis and rupture of the bladder. Though a "board-like" abdomen in these patients may or may not be associated with intraperitoneal lesion, experience has shown that expectant treatment is fraught with danger and all such patients should be subjected to immediate operation. A mid-line sub-umbilical laparotomy should first be done to determine the presence or absence of blood or intestinal contents in the peritoneal cavity. The incision is then lengthened and the anterior wall of the bladder examined. When there is no abdominal rigidity a mid-line hypogastric incision should be employed, but the peritoneal cavity should first be examined by a supravesical button-hole incision in the peritoneum. When possible and when the state of the bladder wall permits, the tear in the bladder should be sutured in two layers. It is imperative to do a cystotomy when the tear has not been sutured and it is always wise to do so, though under favourable conditions rapid cure has been obtained by suture of the bladder and retention of a catheter with no other drainage. Suprapubic cystotomy is the best form of treatment and in the absence of any swelling the perineum should not be touched. To avoid septic complications at the site of fracture the cystotomy must be done in such a way that it excludes the cave of Retzius. This is done by "marsupialization" of the bladder to the skin wall by two rows of sutures and a large drain. The opening is closed two months later under local anæsthesia. The fracture is thus converted from the open to the closed type. Drainage of the cave of Retzius and the site of fracture, abdominal and abdomino-perineal drainage are dangerous and contra-indicated. Reviewing the literature it was found that twenty-nine patients had a fracture of the pelvis associated with intraperitoneal rupture of the bladder. Eighteen who were treated expectantly, died, eleven were subjected to surgical operation and two of them died. Of thirteen patients whose fractures were associated with intraperitoneal tear of the bladder and a lesion of an intra-abdominal viscus, nine who were treated expectantly, died; one died after hypogastric incision and three recovered after laparotomy. Records were found of eleven patients whose fractures were complicated by extraperitoneal rupture of the bladder and "board-like" abdomen and who were treated by laparotomy. In an early series of four such patients there were three deaths and one recovery. In a more recent series of seven patients five recovered and two died. In four doubtful instances of the associated conditions three patients were treated by hypogastric incision and one by retained catheter, all recovered. Records were obtained of thirty-five patients whose fractures were complicated by extraperitoneal tear of the bladder alone and who were treated by methods other than laparotomy. Of those in this series treated by retained catheter two died and one recovered, after perineal incision two died and two recovered, after suprapubic cystotomy eight died and seven recovered, after cystotomy and perineal incision three died and three recovered, after hermetic suture of the bladder and retention of catheter one died and six recovered. Taking the whole figures, immediate laparotomy has given a mortality rate of 15% against a mortality rate of 45% by other methods. The former figure is the same for patients treated by hermetic suture and retention of catheter.

Radical Operations on the Stomach.

W. J. MAYO (Surgery Gynecology and Obstetrics, April, 1923) points out that new methods are leading to earlier diagnosis of lesions of the stomach. Examination by X-rays should be an aid to and extension of clinical examination. In the hands of experts this will insure correct diagnosis in from 90% to 95% of patients. The clinician and radiologist must work together. A growth of the stomach that may appear by X-ray examination to be inoperable, may clinically be operable as movability of the growth is more important than its extent. For carcinoma of the stomach radical operations have been resorted to for the last forty years and whilst experienced surgeons incline more and more to some form of partial gastrectomy in certain types of ulcer of the stomach and duodenum, those more radical in their methods are applying the operation to practically all ulcers of the stomach and duodenum. In duodenal ulcer gastroenterostomy will cure 90% of patients, Finney's operation will cure 5% and in the remainder, those with deep excavated ulcers, partial gastrectomy is indicated. In dealing with the smaller gastric ulcers situated along the lesser curvature Balfour's cautery operation with gastro-enterostomy is successful in 90%. For extensive pyloric ulcers some form of gastrectomy is indicated. Gastric resection in continuity gives satisfactory results for the larger ulcers of the body of the stomach. Ulcers of the stomach and duodenum which relapse after a more conservative operation, should be treated by partial gastrectomy. The Billroth II. method of partial gastrectomy is favoured by most conserative surgeons but the Billroth I., the Pólya method and Balfour's modification of the Pólya method all have their special indications. A mortality of 10% is justifiable after resection for gastric cancer and a 5% mortality after gastrectomy for gastric ulcer, though by careful selection of patients for operation this can be reduced to 2%. The author's personal experience does not lead him to believe that partial gastrectomy has a wide application and he is of the opinion that much normal stomach is unnecessarily sacrificed. At the Mayo clinic resection of the ulcer-bearing area and lesser curvature followed by end-to-end anastomosis of the stomach and duodenum according to the Billroth I. method is coming more into favour. Its use, however, should not be insisted upon. In mobilization of the stomach the whole of the greater curvature and dome can be brought into view by withdrawing the spleen from the abdomen. The lesser curvature can be mobilized by early ligation of the gastric artery as close as necessary to the cœliac axis. The distal end of the artery is then held taut and the lesser omentum is dissected off the stomach, the lateral vessels being ligated in succession. For total gastrectomy, Moynihan's procedure is employed. The Billroth II. method of gastrectomy subsequent to a gastro-enterostomy or as a two stage operation is without competitor. Balfour's modification of the Pólya operation is the most suitable method and is usually necessary for the average condition. The Billroth I. method is coming more freely into use, not only for cancers of the pyloric end of the stomach but also for many ulcers on the lesser curvature. The prejudice against end-to-end anastomosis of the stomach and duodenum is a heritage of the past. The application of this operation in its early days was unsuccessful owing to the "fatal suture angle." This angle was the point at which the longitudinal sutures closing the divided end of the stomach met the circular sutures of the anastomosis. The "fatal suture angle," however, does not occur under modern technique and the value of the method has been recognized at the Mayo Clinic since mobilization of the lesser curvature has been made possible. In this type of operation, as also in Finney's operation and in all

those in which there is tension on the suture line due to dropping of the stomach as a whole to the left of the spine, the stomach is sutured to the suspensory ligament of the liver in such a way as to bring the entire anastomosis to the right of the spine.

Diverticulum of the Œsophagus.

CHARLES H. MAYO (*Annals of Surgery*, March, 1923) discusses the treatment of diverticulum of the œsophagus. In 1840, Rokitansky classified diverticula of the œsophagus into traction and pulsation diverticula. The former are due to some adhesion to the wall of the gullet, such as that occasioned by inflamed glands. This type may be multiple, they are small in size and are generally found near the bifurcation of the trachea. They are usually symptomless. All diverticula of the pulsation type eventually call for surgical interference owing to increasing severity of symptoms. They occur behind the cricoid cartilage on the posterior wall of the œsophagus at the junction with the pharynx. There is a weakness of the muscle wall at this point which has been called the Lannier-Hackerman area. Once the muscular wall is punctured by the growing sac the diverticulum progresses. It goes down in front of the spine and bulges to right or left, but mostly to the left. It may even enter the mediastinum. Some sacs may hold half a litre. The symptoms begin with difficulty in swallowing which may be diagnosed as due to cancer or stricture. Later the pressure of the sac may cause difficulty in breathing or it may interfere with the recurrent laryngeal nerves. The food may enter the diverticulum and cause a swelling which is evident to the patient. He may be able to empty the sac by finger pressure and force the food back into the mouth. The contents of the sac may lie in it for several days, ferment and become highly offensive. Probes or bougies usually pass into the sac. Plummer introduced a method of guiding a perforated probe along a swallowed thread. The patient is given a long piece of thread to swallow and one end is left pinned to the coat. After two or three days if the thread has entered the gullet, it will have advanced sufficiently far along the intestinal canal to stand a pull. A probe is threaded on to the thread and guided past the sac into the œsphagus. The latter may then be dilated if necessary. The barium meal is the best method of diagnosis. It shows the position and extent of the sac. The treatment is varied. Broncho-pneumonia may be a sequel to operation owing to the fermented contents of the sac being forced into the larynx. Excision of the sac with suture of this opening is the ideal method. It may be done in one or two stages. The size of the sac is of great importance. The suture line is very likely to leak and this may cause a cellulitis spreading to the mediastinum. If the sac spreads to the thorax it is better at the first operation to isolate it, pack around it and remove it at a later stage when the danger of spreading infection has passed. Some surgeons after isolating the sac ligate its neck and allow it to slough off. The incision is the usual one for approach to the œsophagus. In isolating the sac the recurrent laryngeal nerves must be avoided.

Anthrax.

ALEXIUS MCGLANNAN (*Annals of Surgery*, March, 1923) discusses the treatment of anthrax infection. Man is infected usually from hides, infected animals or hairs, such as shaving brushes. The portal of entry in human beings is most often a wound of the epidermis. Inhalation of the bacteria with the production of pulmonary infection (woolsorters' disease) is not so common, nor is the acute infection of the gastro-intestinal tract from swallowing spores frequently seen. The skin lesion begins frequently in an insignificant abrasion. The incubation period is about two or three days, then a small papule appears at the site of inoculation, the papule may become a vesicle which breaks down and dries into a black area of necrosis surrounded by a ring of œdema which may have small vesicles scattered over it. The condition is not painful and this distinguishes it from a boil or carbuncle. This may be the total extent of the disease which gradually subsides by the desquamation of the black slough leaving an ulcer which heals slowly. If the patient's resistance is not so great the œdema may spread to involve a large area and the lymphatic glands become enlarged. The lymphatic vessels may be palpable as hard cords. If resistance fails at the glands general septicæmia follows. In rare instances a septicæmia results as soon as infection occurs. Treatment depends upon the extent of the disease. In a patient who has a localized malignant pustule with but little œdema, the author recommends complete excision of the area and advises leaving the wound wide open or cauterizing it. If the regional lymphatic glands are involved, this incision is not indicated. For this class of anthrax infection and also for the pneumonic and septicæmic forms he recommends treatment with serum.

Gastro-Colic Fistula.

GEORGE P. PRATT (*Annals of Surgery*, April, 1923) deals with gastro-colic fistula. Brinton found eleven instances of the condition in five hundred and seven patients suffering from gastric ulcer and Dittrick found six in one hundred and six patients suffering from carcinoma of the stomach. The author states that gastro-colic fistula may be due to cancer, ulcers, tuberculosis, abcess in the peritoneal cavity and congenital anomalies. It may be a sequel to gastro-enterostomy. When cancer is the cause, the lesion is primary in the stomach more often than in the colon. The fistulæ vary in size. The opening may admit only a probe or it may be several centimetres in diameter. The communication may be direct or through a tortuous channel. The symptoms are abdominal pain and discomfort of a vague type, offensive eructations and sometimes fæcal vomiting. In attempting gastric lavage no fluid may return as it passes through the fistula into the colon or fæcal material may return by the tube. An enema may find its way into the stomach. X-ray examination after a barium meal or enema is of great assistance in the diagnosis. Surgery offers the only means of relief. If carcinoma is the cause it is often too far advanced for relief to be afforded, but when due to other causes the fistula may be removed and the viscera closed.

Myeloid Sarcoma.

M. J. STEWART (*The British Journal of Surgery*, January, 1923) records the history of a patient who suffered from a myeloid sarcoma of the radius the colour of which was white throughout. The author points out that the maroon colour of myeloid sarcomata is generally typical of these growths. White areas are often present in the maroon coloured myeloid sarcomata and these are generally the more fibrous portions of the tumour. The author states that he has long been familiar with the fact that the whitish areas at the edges of the maroon tumour were not acellular but were composed of highly cellular, actively proliferating myeloid tissue. The occurrence of a myeloid tumour white throughout its entire extent is in keeping with this view of the peripheral white areas. He quotes James Paget who in 1853 made the statement that myeloid tumours might be all pale. The patient was a girl of six years of age and the swelling had been present for three years. There was involvement of the axillary glands on the affected side. Amputation was performed in view of the fact that the tumour had burst through its capsule and was actively invading the surrounding tissues. The patient's condition at the time of operation was so bad that no attempt was made to remove the axillary glands. Before the patient's discharge from hospital the enlargement of the glands had completely subsided. The author suggests that enlargement of lymphatic glands in myeloid sarcoma might be due to the absorption of blood and disintegration products of the tumour by the lymphatics.

Acormous Embryoma.

C. E. SHATTOCK (*The British Journal of Surgery*, January, 1923) records an instance of an acromous embryoma which he removed by ovariotomy from a child aged two and a half years. The child had suffered from indefinite abdominal symptoms for a period of six weeks. The parents and three other children in the family were healthy. The embryoma which was situated in the ovary of the child, consisted of the head of a hydrocephalic fœtus. The fœtal brain measured five and a half by three centimetres and was lined by ependyma in which the vessels were visible.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held in the Lister Hall, Hindmarsh Square, Adelaide, on Thursday, April 26, 1923, the President, DR. T. G. WILSON, in the chair.

Pityriasis Rosea.

DR. ROWLAND HARROLD showed a girl, aged sixteen years, who suffered from a typical form of *pityriasis rosea* and showed very well the oval macules of a pinkish colour, which varied in size from that of a small pea to a large sized patch. The prognosis was good and the treatment consisted of the application of boracic acid ointment by rubbing twice a day.

Exfoliative Dermatitis.

DR. HARROLD showed two patients suffering from exfoliative dermatitis covering the whole of the body. In one patient the condition had arisen very suddenly, starting from a rash on the fingers and feet. The treatment consisted in a general application of vaseline rubbed in gently night and morning. Internally multiple gland treatment was being carried out.

Psoriasis.

DR. HARROLD also showed three patients suffering from psoriasis. In one patient the condition was very typical, with the rounded and oval lesions on the elbows, knees *et cetera*. In one instance every kind of treatment in the form of quack ointments and treatment from herbalists had been used. The lesions were very inflamed as the result of the various applications. A strong chrysarobin ointment, containing 13.7% of the drug, was being used in this case.

Lupus Erythematosus.

DR. HARROLD next showed two patients suffering from an acute form of *lupus erythematosus* and one patient who had suffered from a chronic form of the same disease for nine years. Dr. Harrold mentioned that the *lupus vulgaris* was a very rare condition in South Australia, owing to the bright sunlight having a detrimental effect on the tubercle bacillus, whilst *lupus erythematosus* was comparatively common. The treatment in these instances was to rub into the patches once a week an application composed of four parts of lactic acid and one part of pure carbolic acid.

Alopecia Areata.

DR. HARROLD'S next patients were a youth, aged eighteen years, and a boy, aged twelve years. Both had good heads of hair of natural colour; prior to treatment they had been quite bald. Dr. Harrold said that usually the hair did not grow again in the original colour. He also said that it was necessary to persevere with treatment and that the results were very satisfactory. The heads had been systematically blistered with *liquor epistasticus* and rectified spirit.

Impetigo Contagiosa.

DR. HARROLD also showed a girl, aged twelve years, with a bad impetigo of the scalp, especially in the occipital region. There was very often no need to cut off the hair, as the crusts could be removed with olive oil and the application well rubbed in. Dr. Harrold usually used the ordinary dilute ammoniated mercury ointment and the lesions cleared up very well.

Herpes Zoster.

DR. HARROLD showed two patients with *herpes zoster*, one of the thigh and the other of the supra-orbital region. The latter was in an elderly man with resultant severe neuralgia. Dr. Harrold said that in his experience lotions and greasy applications were not good in this condition. The treatment usually adopted by him was to keep the lesions dry with a dusting powder of zinc, calamine and starch.

Chronic Pustular Eruption of the Hands.

DR. HARROLD showed for diagnosis a man, aged twenty-eight years, with a chronic pustular eruption of the hands of fifteen years' duration. Both hands were affected, with loss of the nails and very definite deformity of the fingers. At first sight it looked to be a trophic condition of the skin, but it did not coincide with any definite nerve lesion. The fingers were red and inflamed and were covered with yellow crusts. The fingers were very thin and the interphalangeal joints of most of the fingers were contracted and stiff. Dr. Harrold asked for assistance in treatment. At the present time the man was having injections of colloidal manganese, but no improvement had taken place.

Epithelioma of the Upper Jaw.

DR. H. M. JAY showed a man who had come to the outpatient department of the Adelaide Hospital complaining of blocking of the nose of several years' duration. There had been a slight yellowish discharge and a swelling of the right side of the face of three months' duration, during which time the man had suffered from much pain. On examination the nasal passages had been found to be narrow, the left middle turbinate to be impacted and signs of ethmoiditis had been present. On the right side there had been polypi and pus. The posterior ends of the inferior turbinates had been hypertrophic and there had been a tendency to polypoid degeneration. A month later he had been admitted for operation. Trans-illumination had shown both antra to be opaque. At operation each antrum had been opened through the canine fossa. The left antrum had contained offensive pus and the right a neoplasm, a portion of which was removed for examination. The left antrum had been curetted and both antra packed. The pathological report was that the tumour was an epithelioma invading the bone.

Operation had been performed on December 13, 1922. The incision had extended from the right supra-orbital notch, along the inner border of the orbit and outer side of the nose around the ala and through the upper lip, thence externally through the buccal mucous membrane along the alveolus to the outer angle of the mouth. The nasal and orbital periosteum had been elevated. All the outer wall of the nose had been removed owing to involvement, together with the ethmoidal cells as far as the sphenoidal space. The cheek flap had been retracted and all the outer wall of the maxilla removed, together with the floor of the orbit and the hard palate. The posterior antral wall, being uninvolved, had been left. The lachrymal sac had been removed. Deep catgut sutures had been used to unite the periosteum and the incisions had been completely closed. The buccal opening also had been closed, as the mucous membrane had been elevated from the hard palate. The wound had been packed through the nose for twenty-four hours and had subsequently been irrigated daily with "Eusol." There had been very little shock from the operation and convalescence had been rapid. The patient had gained weight considerably. At the time of demonstration he was having X-ray exposures.

Dental Splint for Fracture of Jaw.

DR. GILBERT BROWN showed a man who had been knocked down and kicked about the head. The lower jaw had been fractured on the right side, with displacement of the chin outwards and to the right. On the left side there had been a swelling with tenderness over the ramus, but no crepitus had been felt. The fracture had been easily replaced, but had not been retained with bandages. He had been subjected to examination by X-rays by Dr. Stanley Verco the following day. On the right side the fracture with the displacement had been plainly visible and on the left side there had been an horizontal fracture without displacement. Dr. Taunton, a dentist, had made a Gunning cap splint which had retained the jaw in very good position and was very comfortable. The caps were cemented on to all the teeth on the lower jaw and a strong bar connected the two pieces.

Syphilitic Cirrhosis of the Liver.

PROFESSOR J. B. CLELAND showed pathological specimens from a male patient, aged thirty-nine years, who had been under the care of Dr. de Crespigny at the Adelaide

Hospital. He had had dyspepsia for twelve months and ascites for five weeks. His peritoneal cavity had been tapped several times and large quantities of ascitic fluid had been removed. He had not been jaundiced, had had no rise of temperature and his blood serum had yielded a positive Wassermann reaction. The liver presented the usual appearance of gross distortion from the contraction of irregular strands of fibrous tissue. The type of cirrhosis was coarser and more irregular than in ordinary multilobular cirrhosis. The left lobe was rather more affected than the right. No obvious gummata were recognizable. No aortitis was present, though there was some atheroma in the anterior coronary vessels and slight traces of atheroma in the lower part of the abdominal aorta. The testes were normal. No other evidence of syphilitic infection was detected. Presumably in this instance the liver was at one time "seeded" through and through with spirochætes, thus accounting for the extensive connective tissue reaction eventually developing throughout this organ. In spite of this seeding, no other organ showed obvious signs of reaction to the syphilitic invasion.

Kidney with Double Ureter.

PROFESSOR CLELAND also showed a kidney with a double ureter which had been discovered during the course of a *post mortem* examination on a general paralytic at the mental hospital. The abnormality was found on the left side. One ureter with slightly narrow lumen supplied the lower quarter of the kidney. The pelvis and its branches were here slightly dilated, leaving a narrow rim of atrophied fibrotic renal tissue to constitute the wall. On the surface this part of the kidney was irregularly depressed. The mucous membrane of the pelvis was greatly congested and this was due to pyelitis. The upper three-fourths of the kidney supplied by the other ureter were normal. There appeared to be no connexion between the two pelves.

Osteoma of the Os Calcis.

DR. MALCOLM SCOTT showed a boy, aged seven years, who had a painless bony swelling on the outer side of the left ankle. At first sight the whole outer malleolus appeared to be expanded, but the peronei tendons crossed the lower part of the swelling and a groove above these indicated the actual extremity of the fibula. The radiogram showed a cancellous osteoma springing from the outer aspect of the *os calcis*, which was an unusual site for bony growths.

Mastoid Disease.

DR. H. M. JAY read the notes of a case of mastoid disease in which it had been necessary to ligate the internal jugular vein (see page 638).

Tuberculosis of Suprarenal Glands.

DR. W. RAY read notes of a case of tuberculosis of the suprarenal glands occurring during the course of tuberculous peritonitis.

Typhoid Fever.

DR. RAY also read the notes of a case of typhoid fever with supposed perforation.

The reports of Dr. Ray's two cases will be published in a subsequent issue.

MEDICO-POLITICAL.

A MEETING OF THE WESTERN AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Perth Hospital on May 16, 1923, Dr. D. M. McWhae, C.M.G., C.B.E., the President, in the chair.

Dental Clinics.

Dr. J. DALE, O.B.E., referred to the resolution adopted at the annual meeting of the Branch on March 18, 1923, requesting that the Government provide a dental clinic with one whole-time salaried dentist and the necessary number of part-time assistants to carry out the work of treatment of dental defects in school children and that the treatment should be given at the clinic only to the children of indigent parents. Dr. Dale said that dental caries, oral sepsis and loss of teeth probably constituted the greatest cause of ill-health, affecting a large majority of the people. The trouble began in childhood. Dental caries and oral sepsis were widespread among children in Western Australia. Of 9,482 children examined during 1922, 3,717 had been recommended for dental treatment. This represented nearly 40%. Of 1,172 children examined between January 1, 1923, and the date of the meeting, 526, or 45%, were affected with caries of the temporary teeth and 227, or 20%, were affected with caries of the permanent teeth. Only forty-three children had had teeth filled.

The Branch had decided to recommend the Government to establish dental clinics for the treatment of children of indigent parents. The average parent of the wage-earning and lower-salaried class was not indigent, but he frequently could not afford the cost of dental treatment for his children. If the proposed clinics were provided for the indigent only, great difficulties would arise in determining who were the indigent. If they were provided without reservation, the medical officer could urge and, if necessary, endeavour to compel parents to obtain treatment. They could point out that the school clinic was available if they were not in a position to pay the cost of treatment elsewhere. Children were a communal asset; their health was of vital importance to the nation. The nation should therefore provide the means of conserving it, since the parents could not do so. He therefore proposed that the words "of indigent parents" be rescinded from the resolution.

DR. ROBERTA H. M. JULL seconded the motion.

DR. W. TRETHOWAN opposed the suggested deletion, as, in his opinion, it introduced the question of State medicine at the expense of a sister profession. He did not consider it to be in the province of the Branch. He was in favour of the institution of travelling dental clinics for the country districts and of a dental hospital for the urban district.

DR. W. P. SEED thought that anything in the direction of the nationalization of medicine was undesirable. The introduction of dental treatment for all could not be effected without some general principle being accepted.

Dr. Dale said that he approved of nationalization, that was of organization on a national basis, in regard to the care and attention of children, chiefly in the direction of prevention or prophylaxis.

The motion for the rescinding of the words "of indigent parents" was put to the meeting and was lost. The resolution as carried on March 18, 1923, therefore stood.

The Hospital Board.

It was reported that the friendly societies' representative on the Hospital Board had proposed an alteration of the by-laws of the hospital to the effect that the reference to friendly society members in the following by-law be elided:

> No person shall receive treatment as an out-patient who is able to pay for treatment outside the hospital or is a member of the benefit society.

DR. W. H. NELSON moved and DR. M. KASNER MOSS seconded a motion to the effect that an alteration of the by-law be opposed. The motion was carried.

Spiritual Healing Mission.

A letter was read from the Secretary of the Australian Board of Missions, in which it was pointed out that Mr. Hickson's mission was in no way being run counter to orthodox methods of treatment or to the medical profession generally. Pamphlets had been appended to the letter for the perusal of members.

DR. W. TRETHOWAN recommended that the mission be ignored and suggested that the Branch as such could not support it. This suggestion met with the approval of the meeting.

NOMINATIONS AND ELECTIONS.

The undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

EVANS, ARNOLD STRATHFULL, M.B., 1923 (Univ. Sydney), Dunedoo.

GUINEY, CLARENCE MICHAEL, M.B., 1923 (Univ. Sydney), Kogarah Road, Kogarah.

MISSING JOURNALS.

THE following journals, which have been received by THE MEDICAL JOURNAL OF AUSTRALIA as exchanges, are missing. Each copy bears the stamp impression of this journal. It is requested that the present possessors of these missing journals return them to this office.

The American Journal of Anatomy: May, 1920.

Bulletin of the Johns Hopkins Hospital: April, September, 1916; February, April, July, 1918; September, 1920.

Journal des Sciences Médicales de Lille: January 9, 1921.

La Presse Médicale: September 20, 1922.

New York Medical Journal: February 28, May 29, December 11, 1920; Index, January to June, 1921.

The Journal of Orthopædic Surgery: February, 1921.

NOTICES.

THE COUNCIL OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION has arranged the following provisional programme of the Branch meetings. The Scientific Committee reserves to itself the right to modify the arrangement, but it is hoped that no changes will be necessary.

July 4, 1923.

At the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne Hospital, at 8.15 p.m..

MR. W. KENT HUGHES: "Small Defects that Cause Serious Foot Disability and Their Treatment: Corns, Bunions, *Hallux Valgus*, Hammer-Toe, Weak Ankles, Flat Foot, including Metatarsalgia."

August 1, 1923.

CLINICAL MEETING at the Alfred Hospital.

Medical Societies.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING OF THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA was held at the Adelaide University, Adelaide, on April 13, 1923.

Insulin.

PROFESSOR J. BRAILSFORD ROBERTSON demonstrated the action of "Insulin" in inducing acidosis with convulsions in rabbits in consequence of the production of excessive hypo-glycæmia. A prompt recovery had followed the subcutaneous injection of glucose.

DR. G. BROWN recalled the history of a patient who had suffered from a severe form of acidosis following anæsthesia. The patient had reached such a serious condition as to display the Cheyne-Stokes type of respiration. Within one hour after injection of glucose the patient had been well on the road to recovery.

DR. A. A. LENDON inquired whether the administration of "Insulin" to diabetic patients resulted in the cure of the condition, or whether, as in the case of administration of thyreoid extract, the administration required to be continued throughout life.

PROFESSOR ROBERTSON stated that so far as the very limited experience of the new treatment extended it would appear that administration of "Insulin" must be kept up throughout life. It had been observed that after discontinuance of administration for a few days the hyper-glycæmia did not immediately return to the pre-administration level. This might indicate the possibility of occasional intermissions of brief duration.

DR. LENDON pointed out that in the treatment of a patient suffering from hypothyreoidism who had required the administration of thyreoid extract for a large number of years, it had been possible to discontinue administration in the later years of the patient's life. Dr. Lendon said that this indicated either that the thyreoid had recovered sufficiently to maintain the patient in normal condition, or that the requirements of the body at a relatively advanced age in respect of the thyreoid hormone were less than at an earlier age.

Striated Muscle.

Dr. O. W. TIEGS described a number of new observations concerning the structure of striated muscle. He pointed out that the striations were not discs completely separated by intervals, but that they were continuous and in the form of a double spiral proceeding from end to end of the muscle fibre. The striations in skeletal muscles were so disposed in the fibrils as collectively to form spirals, while in the wing muscles of insects in which the whole muscle fibril originated from a single cell, exactly the same spiral structure of the striations was seen. For the purpose of studying the striations in greater detail Dr. Tiegs had employed the hypertrophied muscles of insect larvæ in which the sarcomeres were about six times the normal size. The result obtained had been that when these were magnified by 3,000 diameters their apparent size was equivalent to a magnification of normal muscle by no less than 18,000 diameters. He had found that the contraction of muscle fibre was not accompanied, as has been generally supposed, by the accumulation of deeply staining material in the middle of the sarcomere, but by its accumulation at each end of the sarcomere in the neighbourhood of Krause's membrane. Dr. Tiegs pointed out that this led to bulging of the ends of the sarcomeres and the appearance of relative constriction in the middle. Fine tubules could be seen in many specimens leading from the interior of the sarcomere to the ends through which the deeply staining material presumably travelled during contraction.

Dr. Tiegs stated, moreover, that he had been able to show that Krause's membrane was similarly disposed in a spiral and that the excitatory stimulus in muscle fibrils actually travelled down the spiral membrane. He pointed out that this could be shown by the fact that after muscle fibres had been immersed in distilled water for five minutes they became incapable of contraction, but still retained the power of conducting stimuli. On fixing and staining the fibres thus treated it was found that the striations had all disappeared, but that Krause's membrane was intact. The excitatory stimulus was thus propagated through muscle in a spiral and this accounted for its slower apparent rate of transmission in muscle than in nerve. If the breadth of the fibres and the distance between striations were measured, it was found that the impulse in human muscle actually travelled twenty times the distance represented by the length of the fibre. If the observed rate of transmission of the excitatory impulse in muscles be multiplied by this factor, an actual rate of transmission was obtained almost exactly equal to the observed rate of transmission in nerve. It could, moreover, be shown that the nuclei of the muscle cells were physically continuous with Krause's membrane and the nerve endings proceeding to the muscle could be perceived to end in the nucleus or in Krause's membrane.

MR. MARSTON drew attention to the recent researches of Fulton who had succeeded in diazotizing "Novocain" with the production of a deeply brown substance, retaining all of the physiological actions of the drug, which, being a dye, permitted direct observation of the seat of its action. On submitting muscle fibres to the action of this diazotized "Novocain" Fulton had observed the muscle nuclei to be deeply stained. Mr. Marston drew attention to the fact that this technique opened up a general method of investigating the seat of action of drugs.

Absorpton of Glucose from the Rectum.

DR. W. RAY stated that at a previous meeting the question had been raised whether glucose could be absorbed from the rectum or not. He wished to report an experiment which established the fact that glucose so administered was actually absorbed. A diabetic patient who had volunteered to undergo the experiment, had been treated until no clinical evidence of glucosuria was obtain-

able on an intake of fifty grammes of carbo-hydrate. His carbo-hydrate intake had then been reduced to forty grammes for two days and then 0.6 litre of a 4% solution of glucose had been administered *per rectum*. In a few hours the patient had passed abundant sugar, thus proving that the glucose had been absorbed. The bowel had then been washed out. The diet had remained unaltered and the patient's urine soon became chemically sugar-free and remained so. Dr. Ray concluded that in administering glucose *per rectum* in pneumonia it was certain that the glucose was actually absorbed.

Post-Graduate Work.

NOVEMBER COURSE IN MELBOURNE.

THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK, have ascertained that the members who attended the 1922 course, are of the opinion that a course should be held in November, 1923, notwithstanding the fact that the first session of the Australasian Medical Congress (British Medical Association) will be held in Melbourne from November 12 to 17, 1923. The Committee has therefore resolved to prepare the course for the fortnight, November 19 to December 1, 1923. It is hoped that members of Congress will take advantage of the arrangements and extend their stay in Melbourne to attend this course. Particulars concerning the programme and other details will be published at a later date.

Naval and Military.

APPOINTMENTS.

The following appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Nos. 33 and 35, of May 17 and 24, 1923:

Permanent Naval Forces of the Commonwealth (Sea-Going).

CHARLES ALEXANDER CROTHERS, M.B., Ch.M., and HAROLD CRANWELL ALOYSIUS HAYNES, L.R.C.P., L.R.C.S., are appointed Surgeon Lieutenants (on probation), dated 9th April, 1923.

SURGEON LIEUTENANT-COMMANDER WILLIAM JAMES CARR, B.A., M.R.C.S., L.R.C.P., is permitted to accept and retain for his personal use fees paid to him by civilians at Jervis Bay and adjacent districts, for his professional services.

Citizen Naval Forces of the Commonwealth.

ROYAL AUSTRALIAN NAVAL RESERVE.

The resignation of ALBERT WALLACE WEIHEN of his appointment as Surgeon Lieutenant-Commander (Retired List) is accepted, dated 31st March, 1923. (Ex. Min. No. 108.).

Australian Military Forces.

SECOND MILITARY DISTRICT.

Australian Army Medical Corps.

MAJOR G. C. BYRNE, D.S.O., is restored to the authorized establishment of Majors, 1st December, 1922.

THIRD MILITARY DISTRICT.

Australian Army Medical Corps.

The resignation of MAJOR S. W. PATTERSON of his commission is accepted, 4th April, 1923.

District Base Staff.

MAJOR S. W. PATTERSON relinquishes the appointment of Assistant Director of Hygiene, District Base Headquarters, 4th April, 1923.

LIEUTENANT-COLONEL J. H. NATTRASS is transferred to the Reserve of Officers, 14th April, 1923.

FOURTH MILITARY DISTRICT.

Australian Army Medical Corps Reserve.

The resignations of HONORARY MAJOR A. M. MORGAN and HONORARY CAPTAIN F. G. COWAN of their commissions are accepted, 20th February, 1923, and 28th March, 1923, respectively.

SIXTH MILITARY DISTRICT.

Australian Army Medical Corps.

To be Major (provisionally)—CAPTAIN C. N. ATKINS, 20th April, 1923.

The provisional rank of Major granted to CAPTAIN C. N. ATKINS, which appeared in Executive Minute No. 483/1921, promulgated in *Commonwealth of Australia Gazette*, No. 95, dated 15th December, 1921, is terminated, 19th April, 1923.

Public Health.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.

IN 1915 the National Council for Combating Venereal Diseases was founded in London for the following purposes: In the first place the Council seeks to provide accurate and enlightened information as to the prevalence of venereal diseases and as to the necessity for early treatment. The second aim is to promote the provision of greater facilities for their treatment. The third aim is to increase the opportunities of medical students and practitioners for the study of venereal disease. Fourthly, the Council encourages and assists the dissemination of a sound knowledge of the physiological laws of life in order to raise the standard both of health and conduct. The fifth object is to cooperate with existing associations, to seek their approval and support and to give advice when desired. The sixth aim is to arrange in connexion with such organizations for courses of lectures and to supervise the preparation of suitable literature. Lastly, the Council exists for the promotion of such legislative, social and administrative reforms as are relevant to the foregoing aims and objects.

These aims and objects in themselves are so admirable and open up so fertile a field of activity that it becomes imperative to ascertain what measures have been employed to attain them and what degree of success has been secured. The seventh annual report of the Council is available for this purpose and with it the report of the seventh business and annual meetings, held in London on June 19, 1922.

From the report for the year June, 1921, to June, 1922, the following information appears to reflect the conditions under which the National Council is working and the views held by its members. It also throws light on the plans of attack followed in this difficult campaign. It would seem that, while free treatment of venereal diseases has been available in the United Kingdom since 1916, the facilities were very limited for the first two or three years. In 1918 fifty-two thousand persons received gratuitous treatment at the clinics; in 1919 the number was increased to ninety-eight thousand and in 1920 to one hundred and five thousand. In 1921 it receded to eighty-four thousand. It is claimed that the reduction of the number of those presenting themselves for treatment in the localities where provision for treatment and extensive enlightenment exists, signifies an actual decrease in the incidence of the diseases. The authors of the report, however, recognize that in the absence of information concerning the stage of disease of the patients when they first come under treatment it is impossible to adduce conclusive evidence on this point. The authors find encouragement in the fact that the number of attendances per patient has increased during the year under review. In 1920 it was 14.2 and in 1921 it was 19.2 attendances per patient. It is the opinion of the Council that their efforts have resulted in bringing people under treatment and in retaining large numbers of them under treatment. The Ministry of Health has recorded that fifty-nine thousand persons ceased to attend before the course of treatment was completed in the years 1919 and 1920 and that a fur-

ther fifteen thousand discontinued treatment before the application of the final tests. In a laudable endeavour to establish their utility the Council plead that there is no reason to suppose that all the persons who discontinued treatment prematurely, were in an infective condition. The final tests are supposed to insure permanent non-infectivity. It is obvious that the dominating opinion of the National Council is non-medical, since every student of these diseases is aware that the whole system of prophylaxis must break down if the patients discontinue treatment prematurely. It is an unfortunate fact that a relatively large proportion of patients discharged with a certificate of "cure" subsequently manifest signs of syphilis. Further investigation in country districts has shown that in various localities between 12% and 70% of the patients at the clinics absent themselves before they are discharged with the magic, but highly dangerous word "cured" appended on the card. This word is perhaps the most abused word in the medical dictionary. It is used freely in hospital reports in connexion with the most obstinate and incurable diseases. To record that a certain number of the patients who leave a hospital after the operative removal of a malignant tumour, are cured is prevarication. Experience teaches that the vast majority of them die within a relatively short space of time of the disease alleged to have been cured.

It is admitted in the report that, even if due allowance be made for the variations in the standard of cure demanded at different clinics, many persons deliberately discontinue treatment while they are still in an infective condition and continue to expose others to the risk of infection. In these circumstances the Council sought information in regard to the systems of compulsory treatment in various parts of the Empire and in foreign countries. The bias of opinion in Great Britain is in favour of a voluntary system. Inquiry reveals that the system in vogue in the United States of America of notification by number and compulsory detention of infective persons is open to grave abuses. The chief complaint of this form of compulsion is that it is directed in the main to women following the calling of prostitutes. In certain countries, namely, Sweden, Finland and Denmark, these compulsory measures have replaced the legislative regulation of prostitution and the police are now responsible for the detection of persons infected with venereal diseases and for the enforcement of their examination and treatment.

It is disconcerting to find that the Council fails to mention the fact that systems for the anonymous notification of venereal diseases and for their compulsory treatment under elaborate safeguards have been in force in Australia for several years and that Western Australia may be quoted as the pioneer State in this regard. The Council gives information concerning the measures adopted in Trinidad, Uganda and other distant places. Surely it is justifiable to suppose that the Council could collect information from this part of the globe. Ontario is quoted as having regulations embodying an acceptable system of compulsory treatment, but the authors refrain from expressing an opinion concerning the value of these measures pending the receipt of further information. If the National Council for Combating Venereal Diseases hopes to achieve success, it must organize an effective information department and it must take steps to insure that proper records are kept of what is being done in the British Empire and in foreign countries.

It is stated that before compulsory treatment can be introduced into Great Britain, the facilities for treatment must be greatly enlarged. Some of the clinics are deficient in accommodation and large areas in the country are devoid of all facilities for treatment. Again the National Council reveals that it is out of touch with the medical profession. Private practitioners in Australia have proved that they can step into the breach and provide treatment, even in districts where clinics do not exist. If the British Government is insistent on the provision of gratuitous treatment, the general practitioners undertaking the treatment could receive payment per attendance. The National Council is endeavouring to educate, but itself is in need of education.

In regard to prophylaxis the National Council has a great deal to say. It has appointed "The Manchester Committee of Inquiry" and this body has presented "a very skilled analysis of the position with regard to skilled disinfection." The reference of this committee included the following sentence: "The Committee . . . . shall take into consideration the social and moral effects as well as the medical results of providing and advertising the ablution centres." The committee arrived at certain conclusions. They found that treatment given at ablution centres diminishes the amount of disease. The evidence on which this finding is based, was obtained from observations in the American and Italian armies. They state that if the treatment is carried out in as thorough a manner as it is in Manchester under the supervision of Dr. Young, the diseases will probably be diminished among those who have exposed themselves to the risk of infection. The committee does not consider that the provision of ablution centres exercises a great influence over the young population in encouraging immorality, since the number of persons under twenty years of age was very small. Moreover, the committee finds that no inquiries have been made for the purpose of determining whether it would be safe for the applicants to incur risks of infection. Very few of the applicants were under the influence of drink at the time of the visit to the centre. There are two conclusions which must be quoted verbally, since the ambiguous language and the disregard for grammatical rules renders their meaning obscure. "That there can be no proof that an uninfected person who attends the centre for treatment, has been exposed to contagion from an infected person." "No case in which ablution has been practised, has presented himself to a clinic and suffering from venereal disease since the order of the Ministry of Health has been made with reference to keeping a record of such cases. This order had been issued three weeks prior to the meeting of the Committee."

The conclusions based on the evidence of social workers and others include the following: The medical evidence bearing on the influence of the centres on the morals of the people is conflicting and is based rather on opinions than on experience. There is evidence pointing to premeditation concerning the use of the centres before exposure to possible sources of infection. This would imply that the centres are encouraging or facilitating vice. The clergy and social workers believe that the centres are exercising an influence among young people in lowering the moral standard. They claim that prostitiutes encourage immorality by asserting that men need not fear disease, because they can afterwards be disinfected.

After considering the opinions of the clergy and social workers the committee made certain recommendations. In the first place they were unanimously in favour of the practice of preventive ablution. The ablution should in their opinion be carried out under supervision and with the help of trained attendants. "In view of the fact that there is considerable reason for supposing that under the present arrangement the centres may be made use of by men who habitually incur the risk of infection and who may suppose that they are provided by the authorities to prevent their personal infection, it should be clearly stated that the object of the centres is to safeguard the communal health and to discourage immorality and promiscuity." The committee regard it essential to combat the impression that the establishment of the centres by the municipalities implies a condoning of immorality. The committee hold that in the advertisements of the centres it should be explained that there is only a reasonable hope of avoiding disease by prophylactic treatment. The advertisements should include a strong recommendation to chastity as the only means of safety. The dangers of venereal diseases should be emphasized and it should be pointed out that the authorities discourage immorality and everything that would condone vice. Lastly, the advertisements should indicate that it is for the communal rather than for the individual safety that the centres are established and that persons incurring risks must be disinfected for the protection of their wives and future children. The Council accepted the report and recommended that pending the issue of Lord Trevethin's Committee's report, provision for skilled disinfection should be provided at venereal diseases clinics. It is interesting to note that on May 17, 1922, the Manchester City Council

decided by fifty-four votes to thirty-one to disallow the sum voted for the maintenance of the ablution centres.

Some reference is made to a somewhat heated controversy in *The Times* and elsewhere on the subject of the views of the National Council on prophylactic measures.

It would seem from the report that a great deal of activity is expended in propaganda, partly by means of lectures and the issue of pamphlets and partly by direct advertisements in the press. That the press advertisement campaign is attractive is revealed by the fact that no less than 75,338 letters replying to the advertisements have been received between June, 1918, and March 31, 1922. These letters contain requests for information concerning infection in the writers, concerning methods of imparting knowledge and concerning venereal diseases generally. The replies are grouped under three headings. To inquiries for information for educational purposes suitable literature is sent. To persons seeking information concerning venereal disease either in themselves or generally the name and address of the nearest free clinic is given, together with suitable literature or the "necessary advice and information is given, as far as possible."

At the annual business meeting the following motion was presented:

> The National Council accept the report of the Manchester Inquiry Committee and commend it to the Ministry of Health and to Lord Trevethin's Committee.
>
> It is recommended that pending the issue of the report of that committee fresh ablution centres should not be established, but that wherever possible arrangements for providing skilled disinfection at the patient's request should forthwith be made available at any time on the premises of existing clinics.

An amendment to the following effect was moved:

> The National Council having received the report of the Manchester Inquiry Committee records its firm conviction that on the evidence submitted no real reliance can be placed on the effectiveness of either ablution centres or skilled disinfection for the civil population and their establishment would undoubtedly lower the moral standard, increase immorality and lead to a higher incidence in venereal diseases.

The amendment was lost by twenty-seven votes for to fifty votes against and the original motion was then carried. It is evident that even among the enthusiasts of the National Council for Combating Venereal Diseases there is no unanimity and that the measures which proved eminently successful during wartime among our soldiers, may be unsuitable for application to the civil population.

Correspondence.

MITE INFESTATIONS OF MAN IN AUSTRALIA.

SIR: I have read with much interest Dr. Cilento's paper on the above subject (THE MEDICAL JOURNAL OF AUSTRALIA, May 19, 1923, page 552). As the author remarks, the observations in the literature are few and scattered. I might, however, draw attention to two that Dr. Cilento has apparently overlooked.

In the Annual Report of the Director-General for Public Health[1] for 1915, I recorded an instance where the employees of two adjacent shops had suffered severely from attacks by the rat gamasid *Liponyssus* (*Leiognathus*) *bacoti* Hirst. This species has also been found to attack human beings in Fremantle and Adelaide.

In the same Annual Report appears also a paper by Dr. (now Professor) Cleland on "Injuries and Diseases of Man in Australia Attributable to Animals, Except those Due to Snakes and Insects." This is supplemental to the paper published in the *Australasian Medical Gazette* (1912), which Dr. Cilento quotes in his reference. In this second paper Professor Cleland records several additional instances of mite infestation in different parts of Australia. The mites responsible were for the most part not identified, though it is probably from the history that in some instances the mite was *Liponyssus bursæ* Ber..

Cases of infestation by this mite occur not uncommonly in Sydney. I have notes of several instances, but the records would add little to what is generally known. The following case is, however, of more general interest in that the mite responsible, though of world-wide distribution, does not appear to have been recorded as causing dermatitis in Australia.

At the end of 1922 a Sydney firm of poultry food manufacturers imported from Brisbane a large quantity of dried butter-milk for mixing in the poultry food. This dried butter-milk was imported in two consignments. The first lot does not appear to have caused any trouble. The second lot, however, appears to have been responsible for the occurrence of an irritating rash among the employees handling the bags. Specimens were submitted for examination and found to contain a small mite which appears identical with *Pediculoides ventricocus*. The first consignment was also examined and a few mites detected, but not in the same numbers as in the second consignment. The butter-milk was sterilized by heat with a cessation of the outbreak of dermatitis.

Yours, etc.,

EUSTACE W. FERGUSON.

Department of Public Health,
Sydney, May 25, 1923.

[1] Dr. Ferguson refers to the Annual Report of the Director-General of Public Health of New South Wales.

OPERATIONS ON THE FOOT.

SIR: In your *résumé* of the work of the American Commission there occurs the following: There is a condition which "has the appearance of an equinus or cavus deformity, but which is really caused by flexion (plantar) of the fore part of the foot." This has been my teaching for many years past and I always demonstrate the importance of viewing cases of even *talipes equinus* following anterior polio-myelitis from the aspect of a dropping at the fore part of the foot, rather than a contraction of the *tendo Achillis*.

The treatment advocated by the American Commission of excision of a wedge of bone from the dorsum is a horrible mutilation and quite unnecessary and only once have I found it necessary to remove any bone and that occurred in a patient of forty-five years of age, from whom I removed a wedge from the neck of astragalus behind the astragalo-scaphoid joint. As I am treating the subject fully in July at the British Medical Association meeting, I will not discuss it further at present. I am pleased to note the general condemnation of fanciful methods for stabilization. I have not performed the operation of transplantation of tendons in flat feet for twenty-eight years.

Yours, etc.,

W. KENT HUGHES.

22, Collins Street, Melbourne,
(undated).

THE DISTRIBUTION OF RAT FLEAS IN AUSTRALIA.

SIR: In the Commonwealth Government's monthly journal *Health* (Volume I., No. 2, February, 1923, page 52) appears an interesting abstract of a report by H. W. Bennetts, M.V.Sc., entitled "Notes on Six Common Species of Fleas in Australia."

Two points in his report appear to me to call for comment. In the report a tabulation is given of the species and numbers of fleas obtained from rats and mice from various ports in the Commonwealth. This tabulation is in the main taken from the results of the examination of fleas collected by quarantine officers at the various ports and forwarded to Townsville for determination. Inasmuch as these officers were only dealing with rats from shipping, overseas and interstate, which was certainly the case in Sydney, and probably at any rate in the other southern ports, the flea returns can only afford an index of the flea population of the shipping which will not necessarily hold good for the fleas found on shore rats. Further information is highly desirable as to the prevalence of *Xenopsylla cheopis* among the shore rats in Adelaide and

Melbourne, especially since this species appears to be absent from Tasmania. Incidentally it might be mentioned that a second series of *Xenopsylla—Xenopsylla nubicus* has been introduced into South Australia where it has been found on a native species of rat (*Leporillus jonesi*) on Franklin Island, one of Nuyt's Archipelago. Information is also wanted as to the possible distribution of this species on the mainland.

The second point upon which I wish to comment, is the extraordinary figure given for the human flea (*Pulex irritans*) from rats in Sydney. Out of 136 fleas collected from rats in Sydney 66 were *Pulex irritans*=48%. In contrast with this I might quote our experience at the Department of Public Health during 1921, where among 1915 fleas examined from 15,858 rats only two specimens of *Pulex irritans* were found=0.1% or 0.12 per thousand rats. This is in accord with the results of flea determinations made at this laboratory since 1909. I do not doubt the specific identification of these specimens of *Pulex irritans*, but I do question that they were taken from rats. Can it be that lesser officials were instructed to get fleas and they got them?

Yours, etc.,

EUSTACE W. FERGUSON.

Department of Public Health,
Sydney, May 24, 1923.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

THE undermentioned have been registered, under the provisions of the *Medical Act of 1867*, as duly qualified medical practitioners:

CAMPBELL, REID INNES, M.B., 1923 (Univ. Sydney), Burketown.
CILENTO (née MCGLEW), PHYLLIS DOROTHY, M.B., M.S. (Univ. Adel.), Townsville.
CILENTO, RAPHAEL WEST, M.D., 1922 (Univ. Adel.), Townsville.
DAY, WILLIAM CHARLES, M.B., 1923 (Univ. Sydney), Wooloowin.
DIVE, WILFRED ROYLE, M.B., 1921 (Univ. Sydney), Brisbane.
FRASER, STUART, M.B., B.S., 1923 (Univ. Melbourne), Brisbane.
LUKIN, FRANCIS WILLIAM RENNICK, M.B., 1923 (Univ. Sydney), Brisbane.
MCINTOSH, RONALD DINGWALL, M.B., B.S., 1922 (Univ. Melbourne), Townsville.
DE MONCHAUX, CHARLES FRANCIS ANTHONY, M.B., 1921 (Univ. Sydney), Brisbane.
QUINN, REGINALD GEORGE, M.B., 1923 (Univ. Sydney), Brisbane.

Additional Qualification.

MCGUINNESS, E. J., Dip. Ophth. Med. Surg., R.C.P. (London).

Medical Appointments.

The undermentioned have been appointed public vaccinators in Victoria: DR. C. M. GREER (B.M.A.), at Dromana; DR. M. H. MAILER (B.M.A.), at Coburg; DR. THALIA E. ROCHE (B.M.A.), at Clunes.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

ROYAL AUSTRALIAN NAVY: Vacancies for Medical Officers.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

JUNE 12.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 13.—Western Australian Branch, B.M.A.: Council.
JUNE 13.—Melbourne Pædiatric Society.
JUNE 14.—Victorian Branch, B.M.A.: Council.
JUNE 15.—Eastern District Medical Association, New South Wales.
JUNE 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 20.—Western Australian Branch, B.M.A.: Branch.
JUNE 20.—South Sydney Medical Association, New South Wales.
JUNE 21.—Brisbane Hospital for Sick Children: Clinical Meeting.
JUNE 22.—Queensland Branch, B.M.A.: Council.
JUNE 26.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
JUNE 27.—Victorian Branch, B.M.A.: Council.
JUNE 28.—South Australian Branch, B.M.A.: Branch.
JUNE 29.—New South Wales Branch, B.M.A.: Branch.
JULY 3.—New South Wales Branch, B.M.A.: Council (Quarterly).
JULY 4.—Victorian Branch, B.M.A.: Branch.

Editorial Notices.

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